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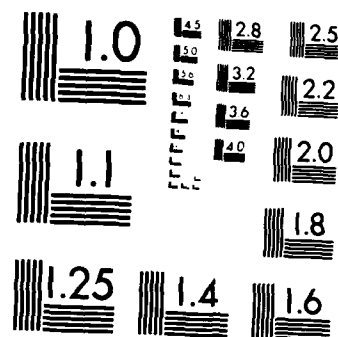
SUMMARY OF PROCEEDINGS AND AFTER ACTION REPORT DARCOM - 1/1  
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# SUMMARY OF PROCEEDINGS AND AFTER ACTION REPORT

## DARCOM — INDUSTRY EXECUTIVE SEMINAR

### ATLANTA IX



SPRING 1983

PRESENTED BY:  
**THE AMERICAN DEFENSE  
PREPAREDNESS ASSOCIATION**

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DEPARTMENT OF THE ARMY  
HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND  
5001 EISENHOWER AVENUE, ALEXANDRIA, VA. 22333

22 July 1983


Dear Atlanta IX Attendee:

I am pleased to inform you that a number of your busy associates have found the time since we met at Atlanta IX, to meet again with me and a number of our senior people to refine the recommendations presented and discussed with you there.

At the enclosure, ADPA is forwarding a record of those follow-up proceedings. It is obvious that my people have work to do to best use that record for our mutual advantage; we are about that task and will have more to say on the subject at Atlanta X.

I want to thank you again for your continued support in improving the process by which we try to serve the interests of our soldiers, and not incidentally our fiduciary responsibilities to all citizens.

Sincerely,

  
Donald R. Keith  
General, U. S. Army  
Commander

Enclosure

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ATLANTA IX

OPENING REMARKS

GENERAL DONALD R. KEITH, USA  
COMMANDING GENERAL, US ARMY DARCOM

ATLANTA, GEORGIA

2 MARCH 1983

General Donald R. Keith

Thank you very much, Norm, and good morning. It is a very great pleasure, indeed, to be back with you for my second session in this important series of Atlanta conferences. As all of you know, they were designed from the very beginning to provide the opportunity for senior leadership of the Army and the defense industry that supports us to exchange candid views -- compare notes, if you will. In my view, it's been a very, very successful forum.

I, like my predecessors, have emphasized the importance of Army-Industry teamwork since my arrival in this job, and I've tried to make it an all-day, every-day proposition. But I think it's well worthwhile to aggregate our thoughts and have an opportunity to do what we're going to do for the next day and a half.

We'll get an opportunity to see how well we're doing. We think we're making some progress, but as we hear these panels report out this year under the theme of strengthening our partnership, we're going to find out, I think, a lot of things that will both reinforce what we're doing and perhaps give us pause to reflect on whether we're doing everything exactly as we should be.

As Hank Miley said, there has never been a more critical time, in my view, to take stock and strengthen our partnership. As I mentioned in my opening remarks last year, the commanders who preceded me at DARCOM and you, our contractors, deserve a tremendous amount of credit for successfully developing a new family of Army weapons systems which can restore our qualitative advantage over the Soviet Union. We literally pulled out all the stops to make the maximum use of the best that technology had to offer in order to do that, and for the most part, that now is successfully accomplished. The challenge today, and indeed it is my primary challenge, is to buy this badly needed new equipment at economic rates and successfully deliver it and the support system behind it -- and I want to emphasize that -- to our soldiers. Fortunately, we are at that at this time and it makes having this job a fun one, indeed.

That leads me to one specific challenge that I have for you as we proceed through the panel discussions for the next day and a half. I don't mean to be pedantic about this, but I'd like each of you to remember as we're talking about individual issues that the Army, indeed the Department of Defense, needs a very well-oiled process of acquiring our equipment that is founded on sound requirements definition, and an R&D program that provides a firm foundation, not only for performance but also for efficient producibility and supportability over the life of that equipment in the hands of our soldiers. It must be a continuum; it must be one that gets us smoothly out of research and development and into production and then to fielding. Now, that transition of our weapon systems from research and development

to production is quite frankly something that we've not done very well in the past few years and as a result, we've given our critics an opportunity to make hay at a point in history when we urgently need public support. More important than that, we have had to recover from our work-arounds at the expense of other urgent Army needs.

I'm going to focus for a few minutes on the Army's experience, but I can tell you from my dealing with other Service counterparts, that these things are equally applicable to the other Services with whom you do business. As you know, our current modernization program is the most ambitious one that the Army has ever undertaken. It began in the early 70s after a decade of R&D neglect and there was a sense of urgency as we went about it. During the period that we were beginning to emerge from Southeast Asia, we recognized that the Soviets, in that intervening decade, had closed the qualitative gap and were producing new weapons at a peacetime rate unparalleled in the history of the world. Then in the mid-70s, as we got earnestly into these R&D programs that are now coming into production, I, like a lot of my contemporaries and I think a lot of you, believed that our magnificent American industrial base could efficiently produce those new systems if we could only get them successfully through R&D with a good, sound design. Well, in 1979, our disappointments began and on reflection, it's clear that our contractors were not able to do all the things that we thought they would be able to do.

As you in Industry who are with us today have undergone your own introspection -- and I know you've done a lot of it -- there is emerging a more and more general acknowledgement that during those years, production engineering had taken a back seat to other corporate goals. Now, fortunately, most of you now see the connection between faltering productivity and loss of markets in the world marketplace, and all of us, both in the Services and you in Industry, do have programs to strengthen our production engineering capability and thus our productivity.

I was pleased to hear on Meet The Press, the Chairman of the Council of Economic Advisors last Sunday say that there is in fact a real up-turn, a measurable up-turn, in the productivity of our general industrial base. So we're beginning to see progress.

Within the Army -- I have to pin the rose on us, too -- there was also a failure to recognize that the risks associated with making the transition are in fact as great as the engineering risks that we faced during R&D. We had learned how to deal with those kinds of risks, but we had not anticipated the problems properly for the transition into production. As a result



of not recognizing that, we placed insufficient resources into our producibility engineering and planning in order to assure that we would have, when we came out of R&D, an item that we could produce at an affordable cost. In addition, we and you, I think, underestimated what was required when we planned our production facilities. We've had one set of bad news after another. And we didn't spend the money that I now believe we should have spent in manufacturing technology in parallel with the basic engineering work on the systems themselves in order that we could produce the item on a most efficient kind of a facility.

I can assure you that we're not going to make that mistake if I have my way in the future. Our production engineers and yours will be brought into the acquisition process early and will stay with it throughout development. And we're planning on identifying and fencing the dollars that are required to do that essential production engineering planning and looking at new manufacturing technologies that will be required to do the job right. We're going to put the dollars on even if we have to do fewer things. We intend to do what we do completely and correctly.

Another very significant contributor to our problems during this transition has been our collective inability to estimate production unit costs accurately. Part of the reason can be attributed to a cost data base that was rooted in technologies more than a decade old. We also had cost estimating methodologies that could not be audited as designs matured and bottoms-up pricing could be done. Worst of all, so-called baseline cost estimates were done only at major acquisition milestones. The result -- production unit cost estimates at the beginning of our R&D was largely done parametrically and that cost was not totally updated until Milestone Three, when we were after a production decision.

I need not tell this audience what happened to us in 1980 and 1981 and 1982. The accumulated effects of a bad economy, a lack of thorough cost audit as we made engineering changes during research and development, all jumped up to bite us at one time and the numbers were staggering. When that happens and when the costs for people and readiness are also increasing, something has to give. For us, it has been a whole combination of things.

As I mentioned last year here, we did get considerable relief from this Administration early on, and we were able to remedy some of the most inefficient production rates that we had been forced to accept. But that euphoria was relatively short-lived, and we've just gone through another sail trimming.

Not all the way back to where we started, but a significant one. Now, all of this adds up to what I consider to be our very worst enemy in this business, and that's instability. There is no way that we can establish and hold an efficient production run on anything if we're gyrating on an annual basis. I'm preaching to the choir when I say that, I'm sure.

Well, the cumulative impact of all of that on our modernization program is obvious. Production and fielding schedules slip, when you have problems like that; the costs increase. The risk that we run, then, is that we're going to get fewer things at higher costs, all delivered later than we need. And I can't think of a worse thing to happen to my Army than that.

Does all that sound like something that's insurmountable? No, I don't think so. And I know that I speak for all my Army counterparts when I say we're committed to minimizing the impact of these inevitable problems by management actions which have been drawn from some of those lessons learned over the past few years. There are things that we can do jointly with you, our Industrial partner.

Mal Currie and John Blanchard are going to get us started today with just such a discussion. As some of you have undoubtedly noticed already, we are instituting some very fundamental changes in the way that we acquire our material. John is going to talk to you in particular about some of those changes in the way we're doing our business. Now, I hasten to say you can't go back and redo the things that you wish you had done differently, so some of the things are not going to be immediately obvious with big new starts. But where we can, we're making the changes as we go. None of these things that John's going to talk about ought to be very big surprises to any of you. In fact, we've discussed a lot of these ideas in our prior sessions here last year and in our Chicago cost discipline conference that many of you attended. This meeting, then, can be considered both a progress report and an opportunity to further develop our mutual thrust for better management.

I am really pleased with the fine turn-out of senior executives that have responded to this invitation. I really do deeply appreciate your willingness to participate. I particularly want to thank those of you who were willing to serve on the panels. From the feedback I've gotten from the green suit members of those panels, you've been working your tails off getting ready for this session, and I really appreciate it. That preparatory work, hopefully, is going to generate the kind of candid discussion that I know all of us came here to have. So with that, let's get on with the program and again, I want to encourage a free and candid dialogue, which has been the spirit of the

Atlanta forums since their inception, and in the end we are going to try to write down all of these things, as we've done in the last two sessions, and keep book on ourselves as to how we're doing with the things that we can jointly sign up for and be proud of.

So with that, I'll turn it back to Norm. I'm looking forward to a terrific session, as I know all of you are. It's a great pleasure to be with you all.

## ATLANTA IX

### PANEL REPORT

#### PANEL II - RESEARCH AND DEVELOPMENT

PANELISTS: THE HONORABLE WALTER B. LABERGE  
VICE PRESIDENT, LOCKHEED MISSILES  
AND SPACE COMPANY

LTG ROBERT J. LUNN, USA  
DEPUTY COMMANDING GENERAL FOR  
RESEARCH, DEVELOPMENT AND  
ACQUISITION, US ARMY DARCOM

MGEN STORY C. STEVENS, USA  
COMMANDING GENERAL, US ARMY  
AVIATION RESEARCH AND  
DEVELOPMENT COMMAND

MGEN JOHN B. OBLINGER, USA  
DEPUTY CHIEF OF STAFF FOR COMBAT  
DEVELOPMENTS, US ARMY TRADOC

MR. PAUL WRIGHT, DIVISION VICE  
PRESIDENT AND GENERAL MANAGER,  
RCA GOVERNMENT SYSTEMS DIVISION

DR. EUGENE S. RUBIN, VICE PRESIDENT  
AND GENERAL MANAGER, DEFENSE SYSTEMS  
DIVISION, SANDERS ASSOCIATES

PANEL REPORT  
ATLANTA IX  
ATLANTA, 21 MARCH 1983

Panel II of ATLANTA IX entitled "Research and Development and the Technology Base" was co-chaired by Dr. W.B. LaBerge as industry leader and Lt. Gen. Robert J. Lunn, USA as DARCOM representative. Members of the panel included MG Storey Stevens, USA, MG John B. Oblinger, USA, Dr. Paul Wright, Dr. Gene Rubin and Mr. E.A. Miller.

The panel presentation at ATLANTA IX consisted of a series of presentations by the panelists and discussions from the floor with the panelists and the ATLANTA IX host, Gen. Donald Keith, Commanding General, DARCOM. Subsequently, Gen. Keith asked for and received in a private discussion, a synthesis of the views of the panel. That synthesis of the panel discussion was condensed at his request to three primary sets of observations and recommendations. It is that synthesis which is reported upon here.

GENERAL OBSERVATIONS

Before discussion of specific areas of potential improvement, the panel presented the following list of general observations.

Subject of Panel - "Status of Army-Industry Relationships" - Too over worked to have much new material. Suggest new topic next year.

Reality of Industry-Army R&D relationships never better.

Strong Army support to briefing industry and obtaining their opinions greatly appreciated by panel and all of industry.

In particular opportunity afforded by 9th ID testing, MAA participation, ADPA & AUSA topic presentations and open door of General Keith and LT. General Merryman gives industry good insight into Army needs.

Army 5 R&D thrusts a valuable tool for industry to key IR&D.

No real audience participation - too many people at ATLANTA IX - perhaps ought to divide up audience into groups to work with panels.

On this issue of format, Gen. Keith acknowledged the need to consider new and stimulating ways to discuss the general subject of Industry-Army cooperation.

The panel, through this first set of observations, wished to strongly support the many ongoing innovative programs for cooperation with industry and to strongly advise their continuation.

OVERALL RECOMMENDATIONS

The overall Panel II recommendation summary is listed below.

Continue Army emphasis on creative ways to obtain industry involvement in requirements definition and technology insertion.

DARCOM reiterate in writing its support of industry involvement.

Find spokesmen within the Army for special opportunities of new technology (significantly lower cost - new ideas with no formal requirement - etc.)

Designate high level civilian in DARCOM with whom industry can interact

Drive Army R&D community to realistically consider inter-service interdependency through use of realistic multi-service scenarios and interservice requirement review

Direct ASB to review situation and suggest remedies

#### RECOMMENDATION - CREATIVE WAYS TO OBTAIN INDUSTRY INVOLVEMENT IN MILITARY REQUIREMENTS

Viewgraph used: Creative ways to obtain industry involvement in military requirements

Encourage more military - industry of the kind used by ARADCOM in LHX (Major General Stevens)

Increase user attendance at ADPA and AUSA meetings (Major General Oblinger)

#### DISCUSSION: THE PANEL II MEMBERS SUGGESTED THE FOLLOWING:

Consideration of using an Ad Hoc panel formed from ADPA members for review of important draft RFP's. In this way the Army will get a more open discussion at program inception. The panel believed this technique will lead to more candid views than the present method where individual company responses may be noted to avoid possible prejudice.

Consideration of a program to make the Army labs act more as an "honest broker" rather than to behave as they might be achieved by multi-lab "Red Team" composition for program reviews.

Encourage (despite travel budget restrictions) more senior military at Army-Industry requirements discussions. This senior representation is crucial to industry belief. It is not that program managers are disbelieved, it is only that they are recognized as not being in the decision process.

Pattern Army-Industry review process around the successful LHX helicopter procurement now underway at Ft. Rucker.

Where possible copy the DIVAD procurement where the general objective was specified for bid not the absolute details of implementation.

Consider more split procurement programs, especially that technique where second source contractors will be allowed what they bid, not forced to meet buy-in quotes of first sources.

RECOMMENDATION - SPOKESMAN NEEDED FOR SPECIAL OPPORTUNITIES OF TECHNOLOGY

Viewgraph used: Spokesman needed for special opportunities of technology

Lowered cost should be an important reason for technology insertion (Paul Wright)

There is no way for "little guy" (eg. non-prime) to get new ideas or concepts worked on (Ed Miller)

With bow wave still ahead, isn't now a good time for more prototyping (W. LaBerge) - More P<sup>3</sup>I (MG J. Oblinger)

Do we really want 6.2 & 6.3A to be used for only "proven technology" (LTG Lunn)

DISCUSSION: THE KEY ISSUES DISCUSSED WITH GEN. KEITH WERE:

Stimulated by Paul Wright, the panel argued for use of new technology specifically in order to reduce cost. He pointed out that to many in industry there appeared no part of the procurement system which focused on lower cost as a primary objective.

Panel members also pointed out that there was not an effective way for a "little guy" (second or third tier subs) to go around the system (prime/program office) to get evenhanded consideration of creative ideas.

In recognition of the inability to procure for financial reasons many new systems, the panel urged more prototyping. It urged prototyping as a way to test the operational benefits of technology and also to help keep usable our present contractor design base. Otherwise this base appears to the panel to have little future.

Panel members questioned the present emphasis on implementation through only proven technology and sought ways to allow introduction of innovative new technology.

More participation by DARPA in areas of Army interest was strongly advocated by the panel. To achieve this greater DARPA interest a much closer rapport between senior DARCOM and senior DARPA officials is required. To get their better rapport, General Keith and LTG Merryman need to personally spend time to achieve it.

## RECOMMENDATION - DRIVE ARMY R&D TO CONSIDER INTERSERVICE INTERDEPENDENCY

Viewgraphs used: Drive Army R&D to Consider Interservice Inter-dependency

Scenarios used for requirement definition seriously deficient - V/VII corps only, no north Ag, no RD JTF, no allies no sister services - fully generated forces only no T.P.F.D.L. considerations (W. LaBerge)

Increase opportunities for interservice R&D testing. Can ensure service systems being designed to work together.

Consider formal offline "for command" interservice review of each other's requirement documents widely distributed them within cooperating services' R&D labs.

DISCUSSION: The panel considers that greatly increased military capability can result from services designing their equipment to work interdependently with those of other services.

Scenarios used by the Army R&D designers are not realistic - they do not stress the probable conditions of strong interservice dependence in battle, neither do the scenarios recognize the dynamics of deployment of R&D forces. As a result of these poor scenarios the synergism of the services is denied because equipments are not designed to work well together. As ASB review of the situation was recommended.

Presently little R&D testing is done employing both Army troops and units of sister services. For example, A10 units should be operating with the 9th ID in development of how to effectively design equipment for light ground forces and their cooperating air support.

Off line "for comment only" interservice review of requirements documentation can ensure each service knows which way the other service developments are going. As it is now, the program and laboratory people of one service are almost always oblivious of the details of what the other service is planning to do.

Future design is especially important to be done in concert by the services. Very little now goes on to allow one service to support the needs of another. There is also very little consideration of the impact of one service EW on the operations of other friendly services. It was the panel's perception that a great deal of EW interdependence was required and that very little was being done to make it happen.

### SUMMARY:

The above items represent the main findings of Panel II. Although much can be done to improve the Army-Industry process, the panel as its parting thought, wished to reiterate how well it felt about the ongoing DARCOM program to facilitate that improvement.



ATLANTA IX  
RESEARCH AND DEVELOPMENT PANEL II

RECORD OF FOLLOW-ON MEETING  
WITH  
GENERAL DONALD R. KEITH, USA  
20 APRIL 1983

## ATLANTA IX - POST CONFERENCE R&D PANEL MEETING WITH GG: 20 APR 83-DISCUSSION POINTS

### OBSERVATIONS:

Subject of Panel - "Status of Army-Industry Relationships" - Too over-worked to have much new material. Suggest new topic next year.

Reality of Industry-Army R&D relationships never better.

Strong Army support to briefing Industry and obtaining their opinions greatly appreciated by panel and all of Industry.

In particular, opportunity afforded by 9th ID Testing, MAA participation, ADPA & AUSA topic presentations and open door of General Keith and LT. General Merryman gives Industry good insight into Army needs.

Army 5+ R&D thrusts a valuable tool for Industry to key IR&D.

No real audience participation - Too many people at Atlanta IX - Perhaps ought to divide up audience into groups to work with panels?

### COMMENTS

"Status of Army-Industry Relationships" is appropriate. ATLANTA was started to improve those relationships, at a time that they weren't nearly as good as they are now. A cyclic look at that issue has been the strength of these conferences. We could change - but...

There are other interesting questions that could be taken on, such as "how do we get into unaffordable programs?"

Why not convene a group for topic ideas? You could try for, say, 24 issues (that's 6 people with 2 issues each day) - and make it a "must" to come back with recommendations.

If conference is broken into small groups (to work on issues) that will make total group understanding and meaningful participation even more difficult.

Could use the Harvard case-study method: present a well-defined and bounded problem; make everyone do his homework; pick a good discussion leader; discuss it among 30-50 people, and then have the group summarize its findings for the conference audience.

There are too many issue-oriented panels and study groups at work already. The ASB, DSB, AUSA, NSIA, EIA, and ADPA all have people doing reports. That brings a steady stream of ideas - often either out of synch with one another or abundantly redundant. The Army's senior leadership can be swamped - how do you handle that without assigning a group of professional routine reviewers?

You just sort of let the good ones through.

The ADPA sponsors several management Conferences, among over 50 technical meetings. Small groups have been tried before - they didn't work out well.

BOTTOM LINE: CG wants to keep ATLANTA small and unique, a senior, hardhitting meeting with full discussion like it is - "on the table".

RECOMMENDATION 1:

Continue Army emphasis on creative ways to obtain industry involvement in requirements definition and technology insertion. DARCOM reiterate in writing its support of industry involvement.

Creative ways to obtain industry involvement:

- Encourage more military-industry cooperation of the kind used by AVRADCOM in LHX
- Increase user attendance at ADPA and AUSA meetings. (MG Oblinger)

COMMENTS:

Pressures (budget/time) curtail Army-Industry interplay under current system.

Ensure realistic spec's by bringing together ad-hoc committees of informed people to be honest brokers (not a Red Team).

Could use "draft RFP" approach to greater extent.

- Waiting for the RFP makes it too late. Start scrub with TRADOC, at the time they write performance and RAM requirements.
- Some argue no one is willing to reply honestly to draft RFP's; afraid to ruin image. Perhaps we could get honesty at the general officer-group VP level, or by letting replies be anonymous.

Bidders and users could have a round table.

Cost panel has already suggested scrubbing RFP's; selecting on basis of cost differences; use of concept validation phase to find the cost/performance drivers and tradeoffs or ultimately terminate.

Finding "honest borker" is a real problem. Even the labs don't always come through. ("Honesty" is perceived to come only from disinterested and unknowledgeable)

Army has used user/developer task force concept. Don't know how to guarantee an "honest" RFP, but we can continue to work to improve it.

Push procurement knowledge and plans farther toward the front (RDTE) end. If industry knew what Army wanted 2-3 years in advance, it would redirect IR&D - and save both time and money as a result (do final development fixed price). That's total package?

The draft RFP has a redeeming value of its own; it gives industry a 2-3 month "heads-up", while Army works in-house to improve and tie up loose ends while providing for feedback on feasibility.

Could split awards: carry two least price vendors.

A paid-for concept definition phase prior to FSED on every program would eliminate gaps in understanding. Computer and sensor information display layouts and software requirement spec's, for example, must be gotten down pat before you try to prototype.

#### BOTTOM LINE:

Cost panel has suggested and is refining methods for increased Army-Industry interplay through precompetition trade-off studies and discussion; and a 2-6 month Program Definition Phase, following contract award, to further pin down specs, refine cost goals, and identify risks. The idea was also advanced that RDTE program contracts should extend through the first production lot (Pulling procurement forward). The several techniques suggested (draft RFP, "honest Broker" review, etc.) should be included for consideration in this effort.

#### RECOMMENDATION #2:

Find spokesmen within the Army for special opportunities of new technology (significantly lower cost; new ideas with no formal requirement, etc.). Spokesman needed for special opportunities of technology:

Lowered cost should be an important reason for technology insertion. (Paul Wright)

There is no way for "little guy" (e.g. non-prime) to get new ideas or concepts worked on. (Ed Miller)

With bow wave still ahead, isn't now a good time for more prototyping (W. LaBerge) and more P<sup>3</sup>I - (MG Oblinger)?

Do we really want 6.2 and 6.3A to be used for "only" proven technology? (LTG Lunn)

#### COMMENTS:

Technology insertion should be used to reduce hardware unit cost, and/or cost of ownership. Should slow down pace of technology insertion, until it's clear that this will be result (vice doing it simply to improve performance).

Augustine argues for using technology to improve performance (but PATRIOT uses twice as many people to get that performance).

PIP's should stress using technology to make systems simpler and cheaper, not just to improve performance.

The "little guy" is taken care of: "Stolarick" position (now Karl Bastress) has that responsibility.

Prototyping will be done in the selected Technology Thrusts.

Problem with prototyping is that it can lead to a sole-source situation (e.g. Fv-15 and JvX).

Could beat that by running 2-3 demonstration projects using different technologies (DARPA approach). But then, DARPA gets into the same mode - they want a 6.4 follow-on in order to justify their demonstrations.

Let final report show that DRCORA is the spokesman for technology. The DCG and the ADS&T spend over 50% of their time shifting funding to meet changing demands/technology opportunities.

Army simply cannot afford all the new technologies. It must concentrate on first fixing near term problems - gaps between existing systems. VISTA, for example, presupposes ASAS, and that other holes in our commo and EW system suites have been filled. They haven't and won't be, unless we start now. Achieving balance is a problem with automated systems.

New thrust ideas are also driving cutbacks in other areas.

Some of that is simply management. Thrusts can either drive costs up or be affordable, depending upon how they're approached. We must avoid "bells and Whistles". Industry can help by not demonstrating ideas which aren't producible.

DARPA isn't as responsive to Army needs as it could be. DARPA gives Army Technologies it isn't enthusiastic about (e.g. Assault Breaker). JLC approach May be the way to avoid that: a joint approach to encourage DARPA to solve problems and not create un-needed new opportunities.

Why not start prototyping 15 years before a new system (e.g. tank) is needed? Build it, test it, modify it, and play with it until it's perfected? Armor and Artillery are headed that way now.

#### BOTTOM LINE:

Office of DCGRDA is DARCOM's spokesman for new technology. ADS&T works full-time in this area.

Unsolicited proposals are monitored at headquarters level by DRCLD (Dr. Bastress) in attempt to assure that all get fair, even-handed treatment.

The DARCOM Technology Thrusts and ongoing work with HTTB/HTLB are initiatives aimed at exploring "prototyping" concept, in full cooperation with the user community.

A primary goal of technology insertion in the near term must be to solve present problems. The Army must balance between achieving simpler, lower-cost systems and filling gaps not covered by existing or presently-programmed capabilities. This argues for emphasis on already mature and proven technologies.

#### RECOMMENDATION #3

Drive Army R&D Community to realistically consider interservice interdependency through use of realistic multiservice scenarios and interservice requirement review. Direct Army Science Board to review situation and suggest remedies. (LaBerge)

Increase opportunities for interservice RDTE. Can ensure service systems being designed to work together.

Consider formal outline "for comment" interservice review of each others' requirement documents. Widely distribute these within cooperating services' R&D Labs.

#### COMMENTS:

This is either "too hard" or the "most important". Scenarios in COEA's always assume fully-generated forces, whereas the TIPFDL shows us that this may take some time, in, say, Europe. Joint testing doesn't work well now - no service wants to reveal its shortcomings. Isn't there some way (short of requiring other services' concurrence) to ensure a fair review 'for comment'?

Each service must design to match its way of fighting. It's sufficient to know other services OPPLANS.

But you must try to optimize before it's too late to change specs.

Good scenarios do exist for other areas (e.g. Korea, Middle East) but it turns out that Europe becomes the driver for most systems.

Europe may not be the driver for light forces - but even if all other scenarios aren't modelled well, we still have smart people to do the analysis. We're also working through the JLC jointly using our own resources. For example, we're looking at the Bob Herman Study, which recommends setting up a "joint center of excellence for electronic warfare".

Army is scrubbing seven areas, looking at front-end of technology in the labs, under charter from the JLC. There's a multi-service General Officer panel as well. Gen. Vessey also brought LTG Merritt in as Director, Joint Staff, with plans to increase JCS participation in this area. The idea is that each CINC will tell how he plans to fight. The services should tune-in to these presentations in planning R&D - not just react to threat projections. Dollars will be fenced at the DRB level to address the CINCs' high priority areas. That should achieve the interservice interdependency/cooperation recommended.

#### BOTTOM LINE:

This is recognizably a difficult area, it would be difficult to give it too much consideration, but the active JLC initiatives, which are jointly conceived, executed, and funded by the services themselves, are concrete proof of the services willingness to seek joint solutions to common problems.

CJCS's emphasis on JCS participation at DRB using CINCs' input should suggest further areas for exploration and give TIPFDL considerations due weight.

ATLANTA IX  
PANEL III - READINESS  
PANEL REPORT

THE PANEL IN ITS FINAL REPORT PRESENTED THREE RECOMMENDATIONS FOR CONSIDERATION BY THE COMMANDING GENERAL OF DARCOM. THE AREAS COVERED IN THE RECOMMENDATIONS ARE SHOWN BELOW AND ARE FURTHER DEVELOPED AND EXPLAINED IN THE FOLLOW-ON PAGES OF THIS REPORT.

1. DESIGN FOR SUPPORTABILITY
2. PRODUCTION QUALITY
3. PREPAREDNESS FOR POST PRODUCTION SUPPORT

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## SUMMARY REPORT - READINESS PANEL

### RECOMMENDATION #1 - DESIGN FOR SUPPORTABILITY

#### \*Viewgraph used:

Complex weapon systems require features to minimize support.

Inject Advanced Technology to achieve reduction in maintenance tasks vice only performance improvement.

Designs should incorporate self adjusting capability to compensate for degradation, i.e. mechanical or gain reduction offset through application of microprocessors.

Assemblies requiring lubrication should be sealed - eliminate fluid and filter replacement.

Update procedures for product improvement to assure consideration of changes affecting  $A_0$  and O&S cost.

Encourage R&D in supportability enhancement.

#### DISCUSSION:

Weapon system complexity adds stress to the operation and support organization, while technology continues to attain higher levels made possible by advances in micro-electronics. Whereas the added burden has often been controlled through use of traditional techniques such as partitioning, special test equipment, job performance aids, etc., application of microprocessors and VHSIC within the weapon system may reduce the added burden.

The added complexity affects both operator and maintenance personnel; however, the operator task, integral to the performance system, is usually fully considered from the aspect of - can the operator do his job? However, the extent of training required for acquisition and maintenance of performance skills is not usually given equal consideration.

Advanced technology is most often employed to improve basic performance, i.e., accuracy, range, functions, countermeasures, etc., achievable within constraints such as weight, size, and power.

This same technology has the potential for fruitful application to reduce the support tail which is directly driven by complexity. The support requirements are normally dealt with at large expense or severe impacts on system operational availability. While application of VHSIC and other techniques may reduce the support requirements, one must consider, of course, the offset caused by the added cost of weapon system hardware. Achieving a balance between the two so as to achieve a net gain is difficult. For instance, eliminating the need for a test set that supports a battalions complement of air defense weapons through BIT (Built-In Test) may prove inadvisable as one now has, in effect, twelve test sets to support.

R&D efforts directed toward application of VHSIC, microprocessors, life time filters and lubricants, etc., for such things as maintainability enhancements, operator skill reduction, and general support resource reductions will speed the payoff in use of such techniques.



Therefore, it is the committee's recommendation to:

1. Encourage both Army R&D and contracotr IR&D into application of new technology for supportability enhancement.
2. Develop techniques to allow the assessment of the impact of such enhancements on life cycle cost and availability.
3. Select a weapon system in current inventory that has been a high user of support resources for a PIP. Restrict the program to supportability improvements that will impact the Operation Availability (Ao).
4. Develop means to incentivize design for low support cost to offset situations where design for lowest production cost conflicts with low support cost.

#### RECOMMENDATION #2 - PRODUCTION QUALITY

\* Viewgraph used:

The quality of product often suffers from inadequate attention to producibility and division of responsibility.

Require producibility reviews during full scale engineering development to include processes and equipment.

Assure that accountability for user quality is assigned to producer.

Accept or procure complete end items rather than components requiring further assembly and test.

Adopt policy - procurement breakout will not jeopardize product quality or system performance.

Small business awards through prime should be managed to credit Army goal and increase mobilization base.

#### DISCUSSION:

The quality of end item hardware is often compromised by inadequate attention to producibility during design and a division of responsibility. The quality of continuing programs is further impacted by the "breakout" process serving to increase small business awards and reduce pass thru costs.

The Army, in buying user quality, sees the need for even more detail Army management. The use of more Government engineers, analysts, controls, and 'breakout' procurement, is envisioned as the best way to assure the end result. Industry, on the other hand, tends to say: "Tell us what you want in simple terms, give us the freedom to do the job and hold us accountable. Under these conditions we can do the job quicker, better and for less cost".

Actually, the difference between the two extremes is more on of degree than complete separation. The key word is: 'accountability'.

Commercially, companies are held accountable by their warranties and the need to preserve their competitive position. The same can be true in defense contracting if the correct approach is used in contracting and management.

Review of design by the Government for producibility is very difficult, compounded by the loss of expertise. Currently, the process depends largely upon administration of a system rather than development of changes based on critique of design.

The continuation of a strong small business base is beneficial to both Government and the primes; however, current policies create a dichotomy for the Army. To assure the strength of the small business base, goals are imposed at all levels of organizations involved in procurement. Unfortunately, awards by primes as a result of Army procurements to a small business do not accrue to the Army, thus the practice of "breakout" is forced on Army procurement agencies. Accountability for end item quality then reverts to the Government forcing the Army to perform as system integrator and requiring technical resources exceeding the current capability.

An example of the alternative approaches exists in the small caliber ammunition program with the 30mm GAU-8 procurement - a model of success.

The reason for the program success, end-to-end, is that it was started down the road with the two-way bridge--with the Contractors given design freedom to meet achievable performance specifications and to make improvements for cost reduction. Contracts were progressively tailored for the job at hand ending in fixed price, competitive, multi-year contracts with total accountability to deliver a product that meets the specification.

Despite the unqualified success of the 30mm program, some new munitions programs are still being procured in the old way. They are being dismantled by the "break out" procurement approach immediately at the end of their development phase with assembly and test to be done in government facilities in the traditional way.

As each program is different, the acquisition strategy should be specifically tailored based on judgment rather than set rules.

The committee supports the following recommendations:

1. Do not breakout prior to initial production.
2. Assign responsibilities for breakout program to Prime and allow subcontractors to satisfy the Army's small business goals.
3. Primes should prove that retention of accountability and responsibility for breakout is the lowest life cycle procurement strategy.
4. Incentives should exist for Prime to control breakout/subcontract on the basis of product quality.

#### RECOMMENDATION #3 - PREPAREDNESS FOR POST PRODUCTION SUPPORT

\* Viewgraph Used:

Confidence in achieving supply production continuity for weapons in the post production phase is low - affected by lead time extensions and incompatibility.

To assure electronic device capability retain factory capability or transition to new technology

Post production support plans should be prepared lead time away from last fiscal year production.

Critical support items should be identified and those long lead time components prestocked/built.

Spares factory production facilities (tools, test equipment, documentation, components) should be exercised through use in repair.

#### DISCUSSION:

The issue addressed here is not the general state of the industrial plant but rather the capability to produce spares after the production line has closed.

Production of spares occurring in random demand sequence throughout the life of the system is dependent upon industry. The industry base must be operated at some level of activity to maintain a reasonable lead time and assure supply continuity in response to surge and sustainability requirements. If components are going out of production, a life-of-type buy is a least desirable alternative due to difficulty in predicting requirements in light-of-life extension programs.

For sustainability, we will have to depend, to a large extent, on the defense industrial base as it currently exists. We need to have sustainability procurement and production plans established in preparation for a crisis that account for US and FMS requirements. If we don't have specific program plans, the temptation is great to assume that more of everything is required, and in the resulting chaos, the truly critical supply items, which represent about 5 percent of the total procurable line items in a system or equipment, will get lost in the noise level.

A warm industrial base is dependent upon engineering and production skilled labor, maintained special tools and jigs, operational test equipment and updated procedures, current drawings updated to incorporate changes required by diminishing manufacturing sources (DMS), and continuing relations with component vendors. Test equipment presents its own set of DMS problems requiring, at some point, replacement with current state-of-the-art equipment and revised procedures. Industry has the technical capability but cannot sustain it for a given weapon without a post-production support program.

Systems and equipment currently in production need to be examined to see what can be done on a case-by-case basis to minimize any adverse impact on readiness and sustainability when primary production lines are shut down. Also, the large hardware inventories in the field that we are supporting without benefit of primary production lines must be looked at individually. For instance, it is not likely that primary production lines for an out-of-production airborne fire control radar would be reopened, because aircraft and radar would be attrited at nearly the same rate and would likely be replaced by newer weapon systems. On the other hand, the same might not be true for battle-damaged land-based radar.

It is our recommendation that six specific actions be taken:

- 1) Management plans for the acquisition of spares (after production lines are terminated) should be developed and implemented no later than the last year of system production.
- 2) Systems currently fielded but out of production and dependent upon replenishment of spares should be reviewed individually and plans developed. To offset phaseout of component production, engineering changes to use new technology should be designed.
- 3) For critical items, long lead components should be identified and prestocked to support spares production.
- 4) By policy, some amount of repair work for each system should be performed by the expected spares production facility.
- 5) For new production, the use of generic test equipment should be required to permit the expeditious removal of spares and repair from primary production lines during crises.
- 6) DARCOM should become the proponent for Product Improvement Programs (PIP's) to improve Supportability and Readiness.

ATLANTA IX  
READINESS PANEL  
RECORD OF FOLLOW-ON MEETING  
WITH  
GENERAL DONALD R. KEITH, USA  
20 MAY 1983

ATLANTA IX POST CONFERENCE READINESS PANEL MEETING WITH CG. 20 MAY 1983: DISCUSSION POINTS

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GENERAL OBSERVATIONS:

Mr. Brownman:

Many key issues in Readiness area. Panel thought it best to do a good job on three. Wanted to go further than just recommend - i.e. wanted to assist in implementation - but couldn't do that. Would present some personal views on how one might implement some of the suggestions, but these weren't to be construed as the panel's judgement. Implementation is key.

- Biggest obstacle to reform is flow-down: getting the changes down to the working level.

CG:

CG is hopeful. Many changes can be done "in-house". There are no broad, philosophical differences between uniformed Service and civilian leadership. The progress from ATLANTA VIII through Chicago (Cost Discipline Conference) To ATLANTA IX is encouraging. Now need to overlay all that output, come to ATLANTA X with "here's what we've done - here's what we're trying to do; and here's what we haven't, and why" feedback. ATLANTA X will be issue oriented - and that agenda may take two ATLANTA's to finish - but that's the plan.

PANEL RECOMMENDATION #1: DESIGN FOR SUPPORTABILITY

- \* Design for supportability: encourage use of new technology to reduce maintenance burden.
- \* Complex weapon systems require features to minimize support.
  - Inject advanced technology to achieve reduction in maintenance tasks, vice only performance improvement.
  - Designs should incorporate self-adjusting capability to compensate for degradation, i.e. mechanical or gain reduction offset through application of microprocessors.
  - Assemblies requiring lubrication should be sealed-eliminate fluid and filter replacement.
  - Update procedures for product improvement to assure consideration of changes affecting Ao and O&S cost.

\* COMMENTS :

- \* Most PIP's now focus on improving performance characteristics. Thrust is to get away from using PIP's just to improve performance. Reduction of maintenance burden and increased efficiency should also be major reasons for adopting a PIP.
  - Present emphasis on producibility creates conflict with ILS efforts.
    - Tug-of-war: designers (best performance) vs. production/manufacturing (least manufacturing cost) vs. maintainability group (easiest to maintain).

- How do you incentivize for least Life Cycle Cost? How do you measure results?
- No matter how well you try to design in maintainability, fielding will reveal shortcomings you never imagined.
- "Maintainability engineering" is a non-existent field. Usually, maintenance experts are ex-warrant officers, with a high-school education. They can maintain anything-have spent lives doing it - but that's not the same as being trained to design a system for minimum maintainance. There's no group of engineers trained to look ahead, and design for maintainability.
- Emphasis with new technology (e.g. VHSIC) is to push production issues. (Can it be engineered to be produced cheaply and reliable), not to think of maintainability.
- There are many "exotic" technologies (e.g. sealed lubrication systmes) which, although expensive initially, might well pay for themselves in reductions to Life Cycle Cost.

#### BOTTOM LINE

CG accepted recommendations. Product improvements (PIP) and Service Life Extension (SLEP) programs have to be watched. Stated that he already had a senior group working on identifying PIP's which will reduce the cost of ownership. Plans to make DARCOM the proponent and to push hard for funding (let TRADOC be proponent for those other PIP's which are intended to improve performance).

#### PANEL RECOMMENDATION #2 - PRODUCTION QUALITY

Production Quality: Prepare for production phase and improve quality through accountability.

The quality of a product often suffers from inadequate attention to producibility and division of responsibility.

Require producibility reviews during Full Scale Engineering Development, to include processes and equipment.

Assure that accountability for quality, is assigned to the producer, and that he is held responsible.

Accept or procure only complete end items, rather than components requiring further assembly and test.

#### COMMENTS:

The key issue here is "break-out"; the thrust' Let the prime contractor control from whom he buys - and then you should hold him accountable for the results.

The panel's not advocating any single approach. Feels that hardware quality is jeopardized by break-out, certainly by excessive break out. Judgement must be used particularly at the working level. Don't just pursue break-out because "it's policy". "Break-out" must be recognized as a tool of weapons systems acquisition management, and not as a tool of installed bureacracies who need it to exist for their perpetuation.

Times have changed. In old days, Army was integrator and could hold itself responsible for the end-item. Today's break-out policies are a carry-over from those times. Now, industry is the integrator of necessity because of the complexity of modern systems, however, the policy does not reflect that change in function.

There are many disincentives in the system:

- The biggest is the way small business (and other special groups- EEO, women) quotas are constructed.
- Mobilization base considerations also play a part. The vendor base must be maintained. Primes could be required to compete suppliers, maintain multiple suppliers.
- Small business quotas exist for and are credited to contract administrators not for the benefit of the ultimate user. Since Defense Logistics Agency (DLA) buys much of what the Army uses, they (as the contract administrators) get the credit for those contracts which are awarded to small business. This forces the Army to fill its quotas from its own contracts - e.g. weapons systems.

You can't address break-out as an "across the board" issue. In many cases, the individual decisions, taken case-by-case, make sense. You must look at each and every program. But, you can temper bureaucratic over-zealousness to overdue this function and that must be done.

The key area for review is small programs. The major programs get thoroughly scrutinized by senior leadership. It's the small programs on which the bureaucracy blindly applies policy.

Perhaps some improvement at the working level could be achieved by simply writing the policy better, to improve the judgement factor. For example, for some types of items, the policy might state: "you shall not break out, unless...", whereas for other items, the policy might say: "You shall break out, unless..." This seemingly small change works large dividends because the burden shifts.

If the development contractor controlled the program through the LRIP phase, many problems could be avoided.

- Agreed-with one exception: When the acquisition strategy is laid out (at the beginning of the program) the whole problem should be thought through.
- Perhaps one could lay out a strategy that says "Don't break-out until...".

How do you incentivize a contractor that doesn't break-out?

- By accepting his acquisition strategy. The contractor could help this by showing that not breaking-out would result in a decrease life-cycle-cost equal to, or greater than the offset in cost of retaining him as a middle man. (Provided the pro-breakout community offers reasonable projections of break-out prices.)
- You must show the "value received" to win.



We assume that the Army would want each contractor to develop his recommended acquisition strategy, then

- Contractors are already asked to do this.
- Yes, but in the past it's not been available as a single document.
- It will be. That's part of the trend away from the stovepipes that used to separate RDTE and procurement/production. In the Army, the old OCRD was concerned only with RDTE. DCSRDA was created to change that, but the full cure will take longer.

Retaining the development contractor through the LRIP phase would help, but the trend, especially in "high technology" programs, is to push for small business break-out even sooner.

- The SBA is oriented toward achieving social goals - not sound business management.
- That's a key point. Under existing laws, SBA can decree that certain efforts be set aside for small business.
- Yes, but that's a small part of the overall problem. SBA set-asides are hard to overturn - in a recent instance, the Army had to take its case to the Hill - but it can be done, if you have a good case. It's still the quota, score keeping system that's the driver.

Producibility reviews have never accomplished much.

- Everyone hears a wonderful briefing - but no one present is really qualified to look critically at the problem.
- Both the Army and industry had allowed their producibility talent to wither, and so producibility reviews did become a case of "the blind leading the blind". Now, both parties are trying to rebuild.
- At a recent Producibility Engineering conference, it was a though there were two competing camps: designers and production people. What is industry doing to smooth this over? The rift won't be corrected until the two camps are joined together again at the plant level.
- That's a tough question. Industry has tried two approaches: rotating individual employees through design and production, and using design/production teams. Neither has been overwhelmingly successful. Now, with the increased emphasis on producibility, and on minimizing the cost turbulence during the transition to production, production positions are being viewed as more "career enhancing" assignments, with salaries rising to match. Perhaps that will do it, but there is no single good answer.
- In the airplane business, production men used to be loud, tough guys who took pride in being able to build any plane the designers wanted. That breed is now extinct. We're trying to recreate them by elevating production people to the point where they're on a peer level with the designers. That process is still incomplete, but it's working.

There's also a preception problem regarding "producibility". Present policies provide for "engineering service support" on production contracts, but the work is based on a formula - a percentage of the total contract cost - rather than on a specific program of work. As a result, senior management, fearing Parkinson's Law (a program will expand to spend the dollars allotted to it), tends to cut out engineering services funds when they review a proposal. Quality assurance suffers the same fate, for the same reasons.

- It's critical to recognize that the industrial base is presently supporting the Army to a greater extent than it did in the past. This, in turn, should drive toward a greater use of commercial - style practices than in the past. For example: the use of warranties to hold contractors accountable for quality.
- We still can't do a good job with producibility reviews.
- Agree - but only conditionally. Producibility reviews can be used as the vehicle to do the macro look at a program. We may not be able to program sufficient dollars against time to do all the tasks programmed without cash flow problems. PMCS should help in that regard, because it lays out dollars against specific sub items. We must fight to hold those funds, so we can spend them at the right time to get the results.
- The Army may not be able to afford warranties. They're a flow-through cost for the contractor that we pay for.
- True, but we have afforded it. For example, the M1 tank is covered by a warranty. It was expensive, but it was well worth the cost.
- Check the HARPOON missile's warranty. The government got a really good deal on that program.
- One problem lies in the environment Army systems face. The mud and grit makes people nervous about writing a warranty.
- What you really need is a warranty that certifies that the proposed design is the least cost required to meet the system specification.
- In a macro sense warranties simply enrich the Insurance Industry. Contractors warrant and then insure against the warranted risk. Insurance costs are allowable costs under government contracts. If one looks at the DoD budget, and DoD is a self insurer there are no insurance costs; adding warranties (which are insured for) then simply add insurance costs to the flow of costs from DoD expenditures.

BOTTOM LINE: CG accepted the recommendation in principle, but noted that:

SBA quotas presently drive the Army to make source break-out decisions to meet its quotas. He is committed to changing the score-keeping system, but requires active support from industry. The case must be made for letting the Army get credit for a prime contractor's small business subcontracts before the Army can hope to change the system to permit primes to do the break-out. If the Army is made responsible for the quotas - these should improve the rationale in reaching break-out decisions.

Mobilization base considerations may also require primes to consider competition of suppliers and maintenance of multiple suppliers.

While it is true that today the contractor is the integrator for programs, the program acquisition strategy must be thought through and set down by both the contractor and the Army early in the program. The decision to break-out (or not to) must be made on a case-by-case basis.

### RECOMMENDATION #3: PREPAREDNESS FOR SUPPORT

Assure supply continuity with post production planning.

Confidence in achieving supply production continuity for weapons in the post-production support phase, is low - affected by lead time extensions and incompatibility.

- Post production support plans should be prepared lead time away from last fiscal year production.
- Critical support items should be identified and those long lead time components prestocked/built.
- Spares production facilities (tools, test equipment, documentation, components) should be exercised through use in repairing items.

### COMMENTS:

Recommendation should be reworded to make it clear that "post production" means after completion of the production of the full quantity of systems authorized to be fielded. These recommendations really deal with planning for the period when a system is no longer in production, but is still in service in the Army.

The last recommendation ("spares production facilities...") advocates the use of production line test equipment, tooling, etc. for use in a repair role, in order to keep it serviceable and ready for reactivation.

- An allied thought is applicable to the electronics field, where the commercial parts base changes rapidly. Technology infusion, by replacement of obsolescent assemblies with new devices which are compatible in form, fit, and function (F<sup>3</sup>) is the way to do it. This is much better than trying to rebuy old components. the recommendation should be expanded to include this thought.
- Another thought: Any original design (particularly in electronics systems) should address technological improvement. The issue is the same: continued supportability over the life of the system. There are many ways to accomplish the support; one way might be that outlined in the last recommendation.

(F<sup>3</sup>) meaning form, fit and function - compatible module replacement is a good way to insert technology. In the avionics industry, continual upgrade is the rule. In the commercial sector, customers have demanded that new modules be F<sup>3</sup> compatible with those they replace.

- The military's "mil-spec" system makes this difficult, since the new commercial chips and components often aren't qualified.

- The trend in the Army is for more smart use of commercial components. The military RDTE effort simply can't keep up with the advances in the commercial sector.
- How do you ensure F<sup>3</sup> compatibility?
- In one program, the rapid progress in chip design has been offset by a crew at Fort Monmouth (50 people) who redesign the component and then point the contractors to the right new devices. That's a worthwhile effort.
- Technology moves very quickly at the chip level.
- The JLC had given some thought to setting up a GOCO facility to produce out-of-production chips, but that's moving in the wrong direction.

The difficult part, in planning for post-production parts support, is forecasting the total quantity needed. Machine-gun bolts are a classic example: We dare not shut down the line because we've never been able to estimate "how many are enough". So we keep stretching the line... to keep it open.

Given that the Army is going to seriously use Service Life Extension (SLEP) and Preplanned Product Improvement (P<sup>3</sup>I) programs throughout a system's life, how does industry get into the loop?

- An example is the CSA's recent initiative to upgrade older equipment; there's been a lot of interest from industry-at-large in this program. How do people submit their proposals to the system?
- The Value Engineering program provides a mechanism for the incumbent production contractor to voice his suggestions, but there isn't a clear way for a third party to get into the loop. That's a tough problem.

BOTTOM LINE: CG basically accepted the recommendation, but asked that it be reworded to clarify the meaning of "post production", and expanded to include planning for obsolescence, with technology infusion. Concepts like F<sup>3</sup> - compatible modules are attractive. This technology infusion concept should be addressed in future design reviews - particularly for electronic systems.

ATLANTA IX

PANEL IV - COST CONTROL

PANEL REPORT

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CENTER AND SCHOOL

LTG GEORGE SAMMET, JR., USA, (RET.)  
VICE PRESIDENT, MARTIN MARIETTA ORLANDO

MR. SIDNEY STARK, VICE PRESIDENT AND  
PROGRAMS MANAGER, AIR-TO-AIR MISSILES,  
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ATLANTA IX - PANEL IV: COST CONTROL  
FINAL REPORT - (REVISED) APRIL 20, 1983

Introduction

Unplanned cost growth on defense procurement programs has been extensively studied - with little impact on the rate of growth. In most cases the findings of these studies have dealt with such factors as buy-ins, non-essential added requirements, inadequate producibility efforts, program instability, unexpected inflation and short tenure of project managers. We feel that these factors are really symptoms and that the basic causes lie in three areas; the environment in which cost estimates are developed, lack of proper preparation for production during the development phase, and an almost complete lack of management of total program costs. In each of these areas, both military and industry participants are motivated in the wrong direction -- to understate cost estimates, to concentrate on R&D at the expense of preparing for production in the development phase and, if anything, to increase rather than decrease program costs. We have thus concluded that real progress toward cost control requires a fundamental change in management attitudes toward, and controls over cost. Specifically, improvements are needed in:

1. The way costs are estimated at the start of a program, and the frequency and quality of estimating updates as the program proceeds.
2. Preparation for production during the development phase.
3. Assignment of responsibility for program costs, assignment of realistic cost goals, measurement of costs against those goals and establishment of meaningful incentives for achieving lower costs.

Our recommendations deal with these areas and are followed with a suggestion as to how they might be implemented in the near term. Also, attached is a list of 38 specific ideas which support and amplify the major recommendations.

Cost Estimates

Cost growth is largely caused by unrealistic initial budgets, established in a highly competitive environment. Industry observes:

1. A low bid is almost invariably considered credible by the Government.
2. Regardless of the reasonableness of funding limits or DTUPC goals, the winner usually promises to meet them and the PMO accepts the promise, due to intense competition among DOD programs for available funds.

One solution to this problem is for the Government to make its own estimate of each contractor's probable cost and to penalize contractors with negative evaluation points for significant departures (say,  $\pm 15\%$ ) from that estimate. This might reduce the incentive to bid low, but doubts concerning the Government's ability to make independent cost estimates prevent us from advocating this approach.

Our proposed solution to this problem is for the Government to solicit technical, management, and cost proposals as it does now. However, the cost portion of the evaluation would focus only on inherent cost differences between the bidders.

For example, one contractor might have available hardware to modify, or past IR&D developments which are applicable, or low labor and overhead rates, etc. Bid differences for no specific reason would be ignored. Source selection would then be made based on technical, management, and true cost difference considerations. There would then follow a program definition phase of 2 to 6 months, depending on program complexity, during which the selected contractor, the developing command, and the using command would work together to determine the system specification, define the ED program, and the DTC production target. During this phase, major trades would be made with the contractor supplying cost estimates as inputs. Today, the technical staff of the Government is normally intentionally isolated from the cost consequences of their desired performance requirements and even where this is not the case, contractors still competing are not prone to point out incompatibilities between desired performance and cost goals. The output of the proposed program definition phase would be a best compromise between cost and performance, with a realistic ED program plan, cost estimate and DTC production estimate. This would be the first time that a meaningful five-year funding plan for the program is possible and a proper time for a DSARC II decision point. This new 5-year funding plan would replace the "wedge" numbers submitted, in some cases several years previously, which established a program line item. Price competition has not been abandoned through this approach. The competition for the ED contract did use inherent cost differences as a criterion, but ignored differences based on optimism/pessimism. Further, major sub-contractor/vendor competitions could still be held and production competition is still available when acquisition quantities are sufficient to warrant it.

(Incidentally, it should be emphasized here that Government functional specialists, engineering, test, quality assurance, etc. are able to exert major influence on total program cost and are often unaware of the cost consequences of their desired approach. For example, the engineering personnel are able to write requirements which can be satisfied only by the most advance technology possible, at whatever cost, and are not held accountable for development overrun or production cost growth over the DTUPC target. The test agency is prone to "finally, do a job right" by desiring the most comprehensive test program known to man -- program cost being someone else's responsibility.

To combat this problem, we suggest that the Government P.M. break down the total program costs - contractor plus Government - arrived at in the program development phase into cost targets for each of the Government key personnel who support him in managing the program. For example, a MICOM engineer responsible for the target seeker of a new homing missile would be given a target cost for seeker development (contractor and Government support), similar target costs for acquisition, and for the D&M phase. Program cost performance against those targets would be noted in memoranda, with copies added to his personal file.)

#### Inadequate Preparation for the Transition from Development to Production

Frequently, programs encounter trouble in the transition from system development to production. A major cause of such difficulties is the tendency to define and fund the development phase as one intended to validate only the hardware and software systems design. This then leaves unvalidated (or poorly validated) such items as the manufacturing and quality production processes, tooling and test equipment, and shipping equipment and procedures. If development troubles arise in these areas during their initial use in production, the result is cost increase due to added effort and schedule delays. The problem is exacerbated when cost problems occur in the basic development program, because these production-related areas are some of the first to be reduced in order to use funds to demonstrate and validate the design (the fundamental requirement to get through DSARC III). It must also be

recognized, and accepted, that many ED prototypes are not producible. They are put together and they do "fly" but only with significant change can they be produced at rate.

To solve the problem of omitting essential elements in the FSED phase, thereby forcing more effort into the transition period and increasing the probability of transition problems, the FSED phase needs redefinition. It is recommended that it be defined more completely to require validation not only of the design, but also of the production processes, tooling, and test equipment. Hard tooling and acceptance test equipment should be built and demonstrated, but only in quantities required to handle FSED rates. The transition need-only concern itself with replication of these tools and special test equipment to handle production rates. To the extent possible, the system should be tested in the shipping, storage, and operational environments. For example, if shipping in containers is a concern, FSED should demonstrate this mode. If storage reliability concerns the user, accelerated aging tests should be part of FSED. This approach will force problems to surface during FSED, and therefore be solved at a fraction of the cost required to cope with them when the pipeline is full.

#### Cost Responsibility, Goals, Measurement, Incentives

Our basic recommendation in this area is to give program cost control the priority it deserves and to give it a results-oriented approach rather than treating symptoms. This means defining and measuring program costs (including O&M), establishing goals which are specifically endorsed at the highest levels of the Army and its contractors, pinning down specific responsibility for meeting those goals and establishing motives for reaching them. The suggested implementation of this recommendation deals first with the contractor base and secondly with Army management.

Contractors, as independent businessmen, are basically motivated to increase sales and profit, goals which are not normally compatible with program cost reduction. Artificial competition techniques such as breakout, dual sourcing and buying spares from small business may appear desirable, but they normally add to cost, not reduce cost. Expensive contract audit systems have the same characteristics. These and other mechanisms for control of costs just make the game more complicated. Only by motivating contractors to reduce costs can real progress be made. We suggest:

- a. Including program cost goals, including DTUPC, in contractual documents early in the program, most likely at the conclusion of the program definition phase discussed earlier. For example, production contract profits could be significantly impacted by departures from DTUPC targets in accordance with formulas agreed to when the targets are established.
- b. Providing significant profit incentives -- and penalties -- for performance in controlling program costs over multi-year periods, even if constrained by annual procurements. This can be accomplished in several ways, one of which is through negotiation of successive follow-on options providing for continually improving prices and substantial sharing by the contractor in larger (or smaller) than expected savings from the basic lot prices.
- c. Buying spares and support (O&M) together with hardware through the production period. This approach would help maintain visibility of total program costs, encourage trade-offs to reduce total cost, and better measure performance. (A concept of unit operational cost is needed, or some other means of measuring O&M and life cycle costs.)
- d. Incentivizing contractor assumption of inflation risks.



With regard to Army program management, the military services are basically motivated to support the troops with the best possible equipment and to get the funding to do so, goals again not clearly compatible with program cost reduction. Further, Army functions, such as R&M, frequently have a strong influence on programs without responsibility for corresponding costs. Responsibility for controlling operations and support costs is fragmented. Total program costs, including O&M are neither measured nor controlled against established goals. Cost responsibility needs to be given a higher priority. In implementing this change, an important first step is the two to six-month program definition process defined above, at the conclusion of which the user (Center Commander as TRADOC lead), as well as the Developer (Developing Command Commanders) and the contractor "sign up" for the program.

Second, future changes to requirements should be validated by the user (Center Commander). If costs rises occur, they should normally be absorbed within the functional discipline involved, for example, Air Defense Artillery, Field Artillery, Armor, Aviation, Infantry, etc. The Center Commander concerned, in coordination with the Developing Command will provide recommendations through TRADOC to DA. In effect, the user becomes responsible for defining systems costs and the developer is responsible for executing programs within those funding limits.

Third, this process presumes that the Chief of Staff, Army will establish initial programmatic envelopes (the POM could provide such a basis, with appropriate "wedges" in the EPA years) and direct his functional proponents (Center Commanders) to "live within their means." A mechanism is needed whereby funds becoming available outside a propensity area (e.g., due to a program slip) can be applied to another program (if it makes business sense).

Fourth, responsibility for program cost goals, once defined, needs to be specifically accepted as an important command objective. Regular measurement of progress against these goals is also required. It goes without saying that the program goals need to be consistent with the goal which the contractors accept.

Fifth, military personnel need to be motivated as much as contractors. Recognition from having met key objectives itself can be a strong motivator, but incentives need to be strengthened for P.M.'s and other key Army managers through accelerated promotions, bonuses, special OER's for military project management personnel, and other means.

Finally, the increased focus on program management described above documents the need for the Military Acquisition Management program with emphasis on selection, education and training of personnel.

#### Implementation

The recommendations above deal largely with cost control of new programs. However, most of the money spent over the next 5-10 years will be on programs already launched. How can these programs be better controlled? The results-oriented approach which underlies most of our suggestions is equally applicable to current programs. We suggest that the Army identify total program or at least multi-year objectives for its major programs (where most of the money is spent). Examples of such goals include unit price reduction (in then year \$) across future lots, the cost of spares per unit or flying hour, improvement in R&M statistics, and the cost of certain performance improvements.

The next step would be negotiation of these goals with the contractor into a multi-year contract or series of contract options. For example, the agreement could provide options for aggressive unit price reductions on all future lots, predicated on given lot sizes and/or other conditions such as multi-year contracts or progress payment funding. It would be desirable to try this approach on one or two programs initially and learn from that experience.

In any event, progress in reducing program costs requires that the user, the buyer and the contractor start treating their programs as a whole rather than a number of annual fragments. Our discussions with DARCOM suggest that this view is shared by the Army, and a number of actions to that end are planned or underway. Our team stands ready to help with the very difficult task of converting this concept into results.

### Cost Control - Specific Suggestions

1. Don't start unless you mean to finish. A commitment to ED is a commitment to field. Therefore, only a serious change in threat or tactics should challenge the program.
2. Some programs, i.e., BIG 5, must be sacrosanct. Cutting all programs 10% is poor business. Defer or cancel lower priority programs.
3. Get costing out of the competitive environment.
4. Build some cost pessimism into every program and cost it! A major reason for overrun is optimistic costing. Competitiveness dictates this.
5. Fund PPE (APE) and training aids separate from ED. Do not permit transfer of funds from one to another, unless total program cost accountability is in place, or production transition is included as part of the development program.
6. Quit underestimating the cost (and difficulty) of transferring from R&D to production.
7. Army should (train) (form) a cost estimating team which would scrutinize every major program (over x \$ million).
8. Incentives for DTUPC are paid prior to any proof of DTUPC or life cycle cost. Pay after proof.
9. More cost is generated by management by conflict than ever stolen by "crooks".
10. Don't accept ED proposals which are really AD and, therefore, not able to be properly costed. ED should be the integration of proven technology. (This requires judgment. If carried to an extreme, program might never get past AD).
11. Where a competitive TDP or a Description of Manufacturing is desired, insure that its progress is milestone the same as hardware.
12. In early phases of a program, realistic production plans and quantities must be used to estimate DTUPC.
13. If a Service wants to dictate a total cost, or an annual cost, then it must accept "Best Effort" results. It cannot dictate both cost and result.
14. A contracting officer must work for the PM; not vice versa.
15. From the beginning, every system, subsystem, every part should have a cost goal. This is true even in Engineering Development.
16. Change control and use of standardized parts contribute to acceptable costs.

17. Subcontracts usually make up more than 50% of the cost of systems, therefore, they must be controlled in the same manner and in the same detail the prime contractor is controlled.
18. Most important is the program team: Army, prime, sub. Make no mistake, the three either work as a team or the program is out of control.
19. Army must budget cost reduction funds in Procurement Funds in order to quickly respond to manufacturing changes.
20. All (or almost all) changes should be implemented by the "Block" method. Implement changes every several years, not every several days.
21. Cost reduction must be incentivized, as difficult as this may be. We have recommended steps toward this goal.
22. Historical data is never available in a form complete enough to be used.
23. Procure pre-production prototypes out of procurement funds. This will ensure attention to preparation for production.
24. Absolute requirements should be held to a minimum whereas desirable requirements can be very numerous - but trade-"offable". The Army has to understand that those requirements in the "desirable" category can be traded off without fanfare, without Army approval (just notification). Prioritize the "desirables" if you wish, but prioritizing will still be only guidance, not absolutes.
25. At the start, the Army should give not only a DTUPC but also a UPC (a cost beyond which it is not willing to pay). Then pay a DTUPC incentive based on the above: 100% down to zero. Again, pay the DTUPC incentive only after proof -- and that proof may not be until the item is fielded. The same holds true also for a life cycle cost incentive.
26. Why not consider a "non-compliant" bid. Such a bid may give 90% of the capability at only 50% of the cost.
27. Place more emphasis on functional acceptability. Requiring an airfit tolerance in the microns only costs money.
28. Either the Service must agree to pay pre-contractual costs or understand that go-ahead doesn't start with contractual signing. That only gives the go-ahead to start looking for people. Pre-contractual costs don't add to the cost of a program, they reduce total costs by increasing the efficiency of the program.
29. Stretching a program never made it cost less -- it always costs more.
30. The only time you can speed up a program is at the beginning, and then only if you pump in the money then. And then minimize the changes.
31. Don't start programs which are questionable. Let DARPA play with those if they want. Conversely, don't let DARPA shove programs down the Service throats.

32. Remember that although DARPA/OSD gives you money to start a program, all subsequent year funds will come out of your hide, all overruns come out of your hide, and neither OSD nor Congress will give you more funds than they planned to without that program having overrun.
33. A truly Tri-Service program will fly better if it is wholly managed at OSD. The concept of one Service being the Executive Agent really means that such Service will fund it. And fund the overruns.
34. Do not allow major (or even significant) changes to be made between ED and production. If it flies well enough in ED to pass ET testing, it flew well enough to go into production. Keep the "how to make it better" efforts for a block change several years hence (and after those changes have been proven). Note: judgment is required here, as with all our recommendations. There are some exceptions to this rule, as in the case of producibility changes to electronic systems which don't require significant tooling or testing.
35. A DCAS on-site team must be given some flexibility. To issue them a Quality Letter of Instructions which forbids them any interpretation will hold up production when in many cases, a local MRB Board can solve the problem quickly.
36. Some degree of MRB authority (especially for production programs) must be given to a contractor; even if it's only for Class II dimensions. The same is true for major subs. They, too, need local MRB authority.
37. If the government accepts a fixed price bid which has obvious faults in it (like allocating \$10,000 to do what the government knows is a multi-million dollar effort) then it should expect only that level of effort.
38. Service testing can be conducted in a much more efficient mode. Contractors conduct testing at 10 times the rate of government agencies.

ATLANTA IX  
COST CONTROL PANEL  
RECORD OF FOLLOW-ON MEETING  
WITH  
GENERAL DONALD R. KEITH, USA  
18 APRIL 1983

ATLANTA IX POST CONFERENCE COST PANEL MEETING WITH CG 18 APR 83: DISCUSSION POINTS

RECOMMENDATION 1:

PROGRAM COST ESTIMATES

Make source selections based on real cost differences rather than bottom-line bids. Establish a program definition phase to determine firm specifications and program costs.

Accurate cost estimates essential for planning and control - not feasible now

Pre-competition trade-off studies and discussions essential

Establish 2-6 month detailed contract definition phase after award

- Pin down specifications
- Define program cost in detail - for development and the DTUPC
- Ensure specs. and cost are consistent and credible

Commit both customer and supplier to meeting established cost targets

COMMENTS:

Although SSEB already stresses 'choose best deal for government' (vice 'choose lowest bid') contractors don't really believe that this is happening. There's no incentive (as a matter of fact, it is viewed as a disincentive) for them to highlight risk in replying to an RFP.

The 2-6 month Program Definition Phase period would allow time to pin down risks; cross-walk between requirements and estimates to find and trade-off cost drivers; and develop realistic cost targets. If the degree of risk doesn't hold up, then terminate the program.

Commitment to cost targets could be motivated by use of FPI contracts which run through RDTE to first production lot. TRADOC, under GEN Otis bought this idea. GEN Richardson (his successor) has agreed to it in principle.

Approach should be applied to systems "across the board", but specifically tailored to each individual system.

BOTTOM LINE: ..CG fully endorsed #1. Stressed that accurate cost estimating and good pre-competition trade-off studies/discussions were vital to the success of the Program Definition Phase concept. Look at a couple of systems as test cases.

Thrust in the meeting was to apply to new (i.e. RDTE) systems. Mr. Allison, over lunch, suggested that we also look at an ongoing production system to speed up feedback. The CG's guidance was to proceed cautiously with any ongoing program. Too many decisions may have already been made

## RECOMMENDATION 2:

### TRANSITION TO PRODUCTION

Expand FSED to include all actions necessary to meet this production schedule and DTUPC goals.

Problems in design and development frequently cause inadequate attention to preparation for production.

Meeting schedule and DTUPC goals requires heavy emphasis on producibility during RD&E phase.

Expand FRSED scope to include validation of production processes, tooling and test equipment.

A limited production lot may be appropriate.

Frequent updates of expected development costs and DTUPC estimates are essential during FSED phase.

### COMMENTS:

The idea of a 'transition to production' phase should be eliminated. If misleads some info awaiting for that phase. The FSED phase should include all of the pre-production readiness tasks, beginning very early. Production tooling, testing and prototyping cannot await a specified time before initiating production build, in R&D, like you would in production - at least those processes which are new or untried and manage an orderly process which culminates in production.

PEP can be used to look at generic problems, but can't do whole job for an one system.

There is a real challenge and there may be problems in putting this into effect: It's hard to defense R&D dollars for producibility against needs of other R&D systems for dollars. There's also an issue with the Congress over whether RDTE or PROC mean dollars should be used.

BOTTOM LINE: Approved in principle, with recognition that we already "take too long", so we must find ways to be more efficient in readying for production while carrying out FSED.



### RECOMMENDATION 3:

#### RESULTS-ORIENTED COST CONTROL

Define total program costs, establish cost targets, assign responsibility to meet targets, measure progress, and reward success.

Contractors and military customers are not motivated to reduce costs.

Increase contractor motivation to reduce cost:

- Negotiate program, or at least multi-year, cost goals.
  - Tie follow-on contract profitability to performance against goals.
- Make cost performance a significant profit guideline - widen guideline range.
- Incentivize contractor assumption of inflation risk.
- Increase MYP contracting - drop current funding penalties.
- Publicize good - and bad - contractor performance; develop standard measures.
- Buy spares and support with hardware through production period.

Increase government motivation to reduce cost:

- Develop definitions of total program cost. Include operating cost as well as procurement cost measures.
- Establish program cost goals and specific responsibility for those goals up through the chain of command, with regular progress reporting.
- Make user fund major changes in requirements, developer fund increases in cost not due to changes in requirements.
  - Via promotions, bonuses, special OER's recognition.
  - By implementing military acquisition management program.

#### COMMENTS:

Publicize good and bad performance by contractors in meeting cost goals. Make it a factor for consideration by SSEB.

- Standards are a problem (for good/bad criteria).
- Been tried before - didn't work.
- Perhaps could handle informally - judgements by senior people.

Make cost performance an item for PM/DPMs' OER's.

Idea is to change mindset from "find what's wrong and fix it" to a more positive mindset.

DTUOC vs DTUPC: Idea is to encourage a cost goal which reflects cost of ownership, vice merely cost of acquisition. This ties to use of technology insertion to cut production and operating cost, rather than to improve performance.

BOTTOM LINE: BG(P) McCall to continue efforts to further identify incentives for Cost Control and realistic measures for use in establishing DTUOC.

ATLANTA IX  
PANEL REPORT  
PANEL V - PROCUREMENT

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## SUMMARY REPORT - PROCUREMENT PANEL

Enclosed is a copy of the "Observations" and "Recommendations" viewgraphs that Panel V used to brief General Keith on 17 May. Also enclosed is a copy of the slide material that Panel V used at the Atlanta IX session in March 1983. These viewgraphs capture, in summary form, the key points that Panel V feels strongly about as it relates to improving the partnership between Industry and the Army. Improving the Industry/Army partnership would allow us to more efficiently provide the needed military equipment to the Army at the lowest reasonable cost.

Panel V selected three key points to focus their examination on and to make recommendations to the Army. We restricted our key points to just three in order to permit a more intensive focus that would result in a manageable set of recommendations that the Army could consider implementing after their own intensive, internal review. The three key points of requirements development, competition, and capital investment, are not new in the Atlanta dialogues. What is new is the environment that we are operating in is more intense, dynamic, and hostile than ever before. Hostile from the viewpoint that we have many detractors that make effective interaction difficult as we attempt to improve our acquisition environment and working partnership.

On the issue of requirements development, the primary thrust of the panel is to encourage the Army to continue their steps to involve industry at the earliest possible phase of developing a requirement. This involvement has, as its primary objective, a better understanding of the fundamental requirements, their trade-offs and priority ranking. In particular, the match of requirements to what is achievable within time, cost and technological constraints. In this regard, the panel feels that industry has to make a major input early. Further, we encourage the Army to reduce the document size for expressing needed requirements to four pages or less, and that, within that document, the requirements be identified in terms of regions of performance rather than specific point designs, and with prioritization of the hierarchy of importance of the capability requirements. This will permit industry to make trade-offs in the systems that they propose at some later phase in the procurement cycle. Additionally, the Army should consider circulating for comment, a requirement draft to solidify the best inputs industry has on how to most effectively express the requirement to allow industry to apply its innovativeness and resourcefulness in the competitive phase to follow.

On the key point of competition, the principal thrust of the panel is to encourage the Army to use competition in a prudent and equitable manner, with early identification of the acquisition strategy to industry. This would allow industry to make its investment plans with a little more certainty of what the future may hold for any specific program. The panel recognizes the importance of competition in providing the Army the best we have to offer. The panel also recognizes that excessive competition can stifle industry investment and create program instability to the point that it will be detrimental to the strength of the industrial base for the future. The issues of equipment breakout and competition at every significant phase of the program is counterproductive to significant investment and long-term commitment by a contractor to a given program. Early discussion and identification of the acquisition strategy would be a major step to allow industry to understand the rules of the game and to invest accordingly. A strong feeling of the panel on competition, in addition to early identification of the acquisition plan, was that the Army needs to take steps with other agencies within the government to gain concurrence in their acquisition strategy in order to ensure stability of the program. It is recognized by the panel that this is a very difficult area to influence and to maintain stability over any extended period of time.

The key issue of capital investment has, as its thrust from Panel V, the need to match program stability and reasonable return on the investment made by industry. It is recognized that the Army is disappointed in industry relative to both the amount of industry investment to modernize the industrial base, as well as the lack of innovative proposals from industry on how they would be willing to invest greater amounts of capital on a given program. The key points identified by the panel under the competition issue directly bear on this situation. In addition to program stability and early identification of the Army's acquisition strategy, the panel recommends more extensive use of multi-air procurements and the desirability of Foreign Military Sales to expand the production base for both lower system costs and enhanced return on their investment. The panel feels strongly that those companies that are firmly committed to the defense business will increase their capital investment significantly when they see that the opportunity for reasonable return will be achieved with reasonable risk.

The recommendations that we strongly urge the Army to consider for implementation relative to our three key points, are indicated by a check mark on the "Panel Recommendations" cards. It is hoped that our discussions with General Keith and his staff, coupled with this summary material, will provide the basis for evolving the specific Army actions that they choose to take in these areas.

The members of Panel V appreciate very much the opportunity to be of service to the Army in this most important endeavor. Developing a better understanding between the partners, (Industry and the Army), in the procurement process can only be achieved by candid dialogue and individual and collective resolve to change things where change is needed. We look forward to strong and purposeful actions between Army and Industry to continue the process of strengthening our partnership.

#### PANEL SESSION V --

#### "THE PROCUREMENT PROCESS - DEVELOPING THE UNDERSTANDING BETWEEN THE PARTNERS"

#### CHARTER

Examine and discuss the need for a full understanding between the partners on the procurement policies, regulations and procedures that form the basis of their business relationship and contractual agreements.

#### PANEL V KEY POINTS

##### Requirements Development

- More early involvement by industry

##### Competition

- Prudent use with early identification of acquisition strategy

##### Capital investment

- Industry capital investment is keyed to program stability and reasonable return

## PRINCIPAL OBSERVATIONS

### Requirement Development

User needs to define requirements or needed capability, not attempt a "specification" (Tell the developer "what" not "how").

Identify in-service support and manning requirements or approach

Performance, cost and schedule trade-off regions are essential for future flexibility

Performance, cost and schedule feasibility are best defined by industry.

Early industry involvement should be continued and expanded

Too many people/agencies currently establish "requirements".

## PANEL RECOMMENDATIONS

### Requirement Development

✓ Define requirements in trade-off terms, not hard specifications, and prioritize requirements.

✓ Limit document to less than four pages.

✓ Consider draft requirement circulation for industry comment.

Start the selection process with the first CBD. (Examine the necessity of DAR change.)

Have the selected industry contractors participate in defining the acceptable bounds of performance, schedule and cost. (Technical feasibility within cost and schedule constraints.)

Define the competitive plan on a program at the start, not at a later phase

Get serious in controlling "Best and finals" and using past performance assessments to control buy-in.

Don't compete a contractor that is performing.

In determining the degree of competition in a program, use the total supplier base.

## PRINCIPAL OBSERVATIONS

### Capital Investment

Industry will invest capital commensurate with expected return and competitive uncertainty.

Industry innovative capital investment initiatives are disappointing.

The Army is too restrictive about its acquisition, break-out and competitive plans to encourage industry capital investment.

Our industrial base modernization requires a new partnership between industry and the Army.

## PANEL RECOMMENDATIONS

### Capital Investment

- ✓ Tell the contractor up front what your acquisition plans are to permit prudent investment planning by the contractor.
- Negotiate specific contractor investment commitments as a part of the program contract. Obtain DoD concurrence for agreement stability.
- ✓ Make more extensive use of multi-year procurements to improve program stability to encourage contractor capital investment.
- ✓ Support or do not impede the contractor in FMS efforts to broaden the sales and investment return base.

## GENERAL OBSERVATION AND RECOMMENDATIONS

### OBSERVATION

The single most important asset for cost management and program success is an experienced, highly capable and motivated program manager.

### RECOMMENDATIONS

Make program management a major career path in the Army with promotion in assignment available

Involve the program manager in the formulation of the requirement and program structure and retain him in assignment through FSED.

Within specified limits, allow the program manager to trade off technical performance, schedule and cost, including contract modification.

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## PANEL SESSION V

### "THE PROCUREMENT PROCESS - DEVELOPING THE UNDERSTANDING BETWEEN THE PARTNERS"

#### DEVELOPING BETTER UNDERSTANDING - KEY ISSUES

- |  |                                 |
|--|---------------------------------|
| * Requirements Development                       | * Industry capital investment   |
| * Competition and more competition               | * Break out                     |
| * VECs   | * Multi-year procurement        |
| * FMS - Sales and Support                        | * B&P/IRAD Ceilings             |
| * Contract Types                                 | * Earlier Industry Involvement  |
| * Some good trends, but...                       | * Competition is not a panacea! |
| * Does the Army really benefit?                  | * Can we share the risk better? |
| * Is the Government really interested?           |                                 |
| * Better Coordination benefits industry and Army |                                 |
| * Long-term disaster, if implemented             |                                 |
| * Risk sharing and reasonableness required       |                                 |

## POINT/COUNTERPOINT TOPICS

- Requirements development
  - Early industry involvement will pay off
- Competition and more competition
  - Early, not at each phase
- Industry capital investment
  - Risk and payoff are keys

## ESTABLISHING REQUIREMENTS

### Recommendations

- Industry involvement before requirement is written
- Use initial CBD as first competitive step
- Involve qualified competitors in defining the requirements, programmatic, and cost region
- Establish FYDP budgets and RFP based on above
- Make initial proposal "first and final".

## COMPETITION

### Negative factors

- Encourage "buy-ins"
- Stifles investment
- Amplifies marketing pressure tactics
- Questionable technique for maintaining technological edge.

## COMPETITION

### Recommendations

- Be selective of what and when you compete
- Announce competitive strategy early.
- Recognize vendor base competition (Matter of investment involved)
- Incentivize aggressive price reduction

## CAPITAL INVESTMENT

### Good Trends

- \*Higher progress payments
- \*Trend to permit higher fee potential
- \*IMIP - Industrial Modernization incentive program
- \*FCMC-Facility Capital Money Cost
- \*Accelerated depreciation of equipment

## CAPITAL INVESTMENT

### Discouraging Factors

- \* Program instability
- \* Recompetition
- \* Breakout

## CAPITAL INVESTMENT

### Recommendations

- \* Work for program stability
- \* Get aggressive on more multi-year contracts
- \* Less break-out propensity
- \* Get on with IMIP

ATLANTA IX  
PROCUREMENT PANEL  
RECORD OF FOLLOW-ON MEETING  
WITH  
GENERAL DONALD R. KEITH, USA  
17 MAY 1983



DISCUSSION POINTS

OBSERVATIONS -- REQUIREMENT DEVELOPMENT

User needs to define requirements or needed capability, not attempt a "specification" (tell the developer "what", not "how").

Identify in-service support and manning requirements or approach.

Performance, cost and schedule tradeoff regions are essential for future flexibility, including minimum acceptable thresholds.

Technical performance, cost and schedule flexibility are best defined by industry.

Early industry involvement should be continued and expanded.

Too many people/agencies currently establish "requirements".

PANEL RECOMMENDATIONS -- REQUIREMENT DEVELOPMENT<sup>1</sup>

Define requirements in tradeoff terms, not hard specifications; and prioritize the established requirements.

Limit document to not more than four pages.<sup>2</sup>

Consider draft requirement circulation for industry comment.

COMMENTS:

Thrust is to get the user out of the specification writing business. Instead, state what is needed; define the most critical parameters, and then articulate performance requirements in "bands", rather than point values.

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1 Five recommendations were listed, but the panel concentrated its advocacy on these three.

2 Slide said "ten", but Mr. Hawes said they had been refined to "four".

General Otis, as Commander TRADOC, pushed hard for this idea. He thought the user should only state the job that was to be done and the mission availability which was expected

People sometimes confuse the ROC with the specifications which are derived from the ROC. These specs may be tighter than needed -- and we tend to hold to them, rather than to the more general ROC requirements.

The key is greater industry-Army dialogue early in the development process. Participation in Mission Area Analyses (MAA) is a good start; we need to find more. Industry is the best judge of technical feasibility, cost, and schedule. The ability of industry to do independent operations research is also much improved -- particularly over the last 3-5 years -- as a result of the need to convince skeptical most senior corporate executives of the wisdom of investing in a particular military program.

The MLRS program is a good example of such a development. The requirements were kept simple and flexible: to kill targets within a certain range band. This left Vought and Boeing each free to choose its own strategy to provide that capability, without having to contend with a flock of secondary restrictions on diameter, length, weight, etc. The result was that the Army benefitted from a much healthier industrial competition, which concentrated on accomplishing the basic mission rather than side issues.

DIVAD was another good example. The Army defined its basic requirement, provided support in International matters and then backed away and let industry develop solutions. That took guts!

This is a return to a process similar to that which existed in the '60's. We circulated draft requirements then. We've come full circle.

The Cost Panel came up with a similar recommendation that draft requirements be circulated. They also asked whether industry could be told about the proposed acquisition strategy. The answer to that is a strong "YES!" Let everyone have access to the draft requirement, and then, (as they're developed) the acquisition strategy and the draft RFP.

This sort of interchange challenges the selection process. When you float all these papers back and forth, the SSEB process becomes a sporty course.

- The more open the Army is in its dialogue, the greater the risk of challenge by industry. Industry must be prepared and willing to trust the Army's judgement when the final selection is made.

- As long as the rules of the competition are clear, that shouldn't be a problem. Shouldn't is correct; the Army will go as far in this direction as Industry's collective behavior permits.

One real advantage of circulating a draft RFP is that it shows what the Army is really thinking (behind all the rhetoric).

- However, the responses from industry must show the value of having made the effort. In the past, results have sometimes been disappointing.

- The problem on both sides may be that the lower echelons in both government and industry don't have the right perspective. The draft RFP's and the comments back should be reviewed at the MSC commander-senior executive level, to ensure that the dialogue is forthright and meaningful.

Starting the dialogue at the RFP stage is too late. Must start with the requirement development stage. If the requirements documents and the draft procurement strategy are negotiated well, there'll be no need to circulate the RFP.

PMCS will encourage the Army PM to look harder at producibility and reduce his ability to throw dollars at late-breaking problems. Industry must also improve its ability to think these problems through and program for them.

Knowing the total acquisition strategy is critical. The RDTE RFP only lays out the RDTE phase. It doesn't go into procurement issues like whether second-sourcing is planned.

Knowledge of the total acquisition strategy is important in planning subcontracts. In some cases, the prime must be prepared to indemnify the subs, in order to get the best deal.

These recommendations advocate a return to the '60's way of doing things. Then, the Army floated the desired military characteristics for a new system to as many as 50-60 firms. The mechanism for getting comments was changed to a draft RFP in the mid-60's, because industry wanted more explicit statements of the specifications. In the '70's, the trend was toward more complete definition by the government, gradually shifting away from industry interplay. Now, industry is saying "let's go back to the open dialogue over the requirement, the acquisition strategy -- tell us what you want and how you plan to go about it, and let us provide feedback.

- One driver in this shift is that it now costs industry \$15-20M to compete and win in a large program. A program of moderate size is a 5 million proposal investment. The government is also pushing a bigger share on capital, to modernize the industrial base. The corporate staff must know all the rules (in a competition) in order to sell upper management on competing.

- One undesirable side effect of more dialogue is that it could add more time to the development process. This must not be allowed to happen.

- One problem with using industry (feedback) to assess feasibility arises when two firms reply that a proposed system is feasible, and two say it's not. How do you tally the votes? The Cost Panel has recommended bounding the parameters and continuing on to the definition phase, rather than making a final determination on the spot.

#### BOTTOM LINE:

CG approved the concept of simplified requirement documents, with encouragement to prioritize the trade-off of performance requirements. Noted that tradeoff was critical in order to determine point at which it ceases to be cost effective to buy further performance.

CG favored industry participation in details of requirements documents, proposed acquisition strategies and draft RFP's, provided that a mechanism could be found to do so without increasing development time.

#### OBSERVATIONS -- COMPETITION

Define the competitive plan on a program at the start, not at a later phase. Then stick with it; this is essential!

Get serious in controlling "best and finals"; and using past performance assessments to control buy-in.

Don't compete a contractor that is performing, and whose cost/price is not judge unreasonable.

In determining the degree of competition in a program, use the total supplier base.

## RECOMMENDATIONS -- COMPETITION<sup>1</sup>

Define and hold to the acquisition strategy to add program stability to protect the contractor investment commitment (DIVAD and MLRS are good recent examples). "Late breaking" competition destroys contractor incentive to invest, not because he has lost opportunity to enrich himself as a sale source; not because he has insufficient production base over which to write off capital investment.

Get DoD agreement on the acquisition, strategy and hold firm against DoD, Army, micromanagement. Drive a stake in these programs to be left alone!

Explicitly consider past performance, and start a data base to support its use.

### COMMENTS:

Central theme: don't compete simply for the sake of competition. "More" simply is not necessarily "better."

The first observation (define a competitive plan...) and the third (Don't compete...) may be mutually exclusive. However, if the other recommendations and observations are met, this may not be a problem.

Multi-year contracting favors less competition. However, Congress is reluctant about approving multi-year contracting, because it decreases its control. The Army has been unable to prove savings greater than 5-8%; it will take more than that to sell this approach. Industry will have to take some risks in order to achieve higher savings.

The Army must look seriously at where competition is most advantageous. Sometimes, the greatest payoff is at the "supplier" level.

- However, help from industry is needed to get an accurate picture of the supplier situation.

- Industry willing to help fill in the supplier situation -- but please: don't turn that into another report to fill out! Just ask what is bought, and how, and who can be counted on to deliver. (Bureaucracies only need a small seed to grow and flourish.)

One big complication in securing stable Army-DoD agreements is that a new Administration moves in every four years. The changeover in key senior officials allows the bureaucracy to resurface old issues, reopen debates, over turn past agreements.

Considering contractors' past performance during source selection is already policy. The data base part, however, causes problems we have not been able to surmount absent intolerable bureaucratic inroads

Building a data base is difficult; ensuring it is equitable, remains so and is kept up-to-date are virtually impossible. For example; suppose a firm has had problems, but has finally set its house straight to cure them at great cost to finish its present over-run contract. The data base will only show this past failure! Do we now launch out with another contractor knowing the re-learning will probably be experienced again?

- How do you rate a contractor who has done well on past Army programs, but done poorly on other services' programs. Is he good or poor; or only Army good or poor, etc.?

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<sup>1</sup> Five recommendations were listed, but the panel only advocated these three.

- The best call has to be the subjective one.
- Industry has no reservations subjectivity in the judgement, provided it knows where in the process the judgement call is to be made.

#### BOTTOM LINE:

CG approved all three recommendations -- except that he emphasized that judgement (vice contractor performance data base which of necessity creates a policy, procedure and legal bureaucracy of its own) will continue to be used in assessing a contractor's ability to perform. CG feels that, with that change, existing policy and PMCS "fill the bill."

#### OBSERVATIONS -- CAPITAL INVESTMENT

Industry will invest capital commensurate with competitive uncertainty and expected return.

Industry innovative capital investment initiatives are disappointing.

The Army is too restrictive about its acquisition, break-out and competitive plans to encourage industry capital investment.

Our industrial base modernization requires a tighter partnership between industry and the Army.

#### RECOMMENDATIONS -- CAPITAL INVESTMENT<sup>1</sup>

Tell the contractor up front what your acquisition plans are; this will permit prudent investment planning by the contractor.

Make more extensive use of multi-year procurements to improve program stability, which will encourage contractor capital investment.

Support or do not impede the contractor in FMS efforts to broaden the sales and investment return base.

#### COMMENTS

Industry hasn't stepped up to capital investment because of:

- the high cost of money in the last few years.
- lack of stability in Army programs.
- uncertainty of payback, because of break-out policies.

The Army must continue to hammer the need for more capital at the CEO/Board of Directors level -- they're the ones that need convincing.

There's also an issue within the Army at the Secretariat level. Some civilian leadership feels that industry will modernize itself, if the market looks good. This reasoning is therefore opposed to government sponsorship in the form of IMEP, etc. (CG is open on the issue. If a program needs significant dollars, and there's a chance for a high leverage return from our expertise--then okay. But there must be that high leverage aspect.)

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<sup>1</sup> Four recommendations were listed, but panel narrowed its advocacy to these three.

Industry sees IMEP as a "pump priming" transition phase. If Army will stand up to stabilizing its acquisition plans, then industry will listen--and invest. It may take inclusion of features such as buy-back provisions in contracts to make this happen, but it can be done.

The key is to make the leverage self-evident -- to tie Army-related investment to industry's own, broader investment strategy.

In order for the second recommendation to be feasible, a savings of double-digit proportions must be demonstrable. The Hill won't buy the 5-8% projected at present. (Note: See also comments on page 7.) Industry must recognize this fact. Second-order effects (resulting modernization; improvement in productivity, etc.) should be looked at but these alone won't sell the idea.

Industry perceives that the government works against FMS efforts.

- This may not be outright opposition -- there's certainly a "laissez faire" that doesn't seem to recognize the worth of FMS as a means of reducing cost spurring capital investment.

- The perception is not understood. First, failure to show why a case should not be granted will result in automatic approval after 30 days. Second, the Army does encourage FMS, provided it's comfortable with the timing (with respect to equipping own forces) and the customer. In some cases, equipment has been bailed to make it available. The critical issues to be considered are: the effect of technology transfer; competition with the arsenal accounts, and whether a business offset is involved.

#### BOTTOM LINE

CG approved the first recommendation to make acquisition plans available to industry early.<sup>1</sup>

CG accepted the second -- but emphasized that industry must be willing to accept some risk, to achieve savings of greater than the present projections (5-8%) if Congress is to be convinced to support multi-year strategies.<sup>2</sup>

CG accepted the third in principle, but felt that it was based upon a misunderstood perception.

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<sup>1</sup> See also discussion on page 3

<sup>2</sup> See also discussion on page 6

ATLANTA IX  
SUMMARY REMARKS  
FINAL SESSION

THE HONORABLE NORMAN R. AUGUSTINE,  
CHAIRMAN, DEFENSE SCIENCE BOARD AND  
PRESIDENT, MARTIN MARIETTA DENVER  
AEROSPACE

LTG JACK N. MERRITT, USA, DEPUTY  
COMMANDING GENERAL, US ARMY TRADOC;  
COMMANDING GENERAL, US ARMY COMBINED  
ARMS CENTER

THE HONORABLE JAMES R. AMBROSE,  
UNDER SECRETARY OF THE ARMY

GENERAL DONALD R. KEITH, USA,  
COMMANDING GENERAL, US ARMY DARCOM

## SESSION VI

Mr. Augustine

As you can see, we have one surprise panelist here who was not on your program, but our program is, for the rest of the morning, I'm told I'm supposed to take 10 minutes to summarize everything we've heard this last day-and-a-half. When I finish I hope you'll think you were at the same meeting that I've been at. I'm also told that the purpose of this is to refresh your memories so it will trigger lots and lots of good questions and the idea now is to take questions from the floor, not from cards, so if you'll all be thinking and when I get done our panel will go right into taking your questions and I hope we'll have long lines at the microphones.

We began by hearing that communications between the Army and Industry are generally quite good and I think the candor of the discussion here is clear evidence that that is indeed the case. We were told, though, that there is a flow-down problem in terms of at the lower levels of having that policy agreement reflected in the day-to-day implementation agreement. Clearly, problems do remain in the acquisition process, but we saw a strong desire to progress and to solve them, but that there are many impediments and distractions remaining yet to accomplish this objective.

Indeed, we do wish to reform and in order to put a focus on how we might do better, I tried to pick out the nine areas that I heard emphasized in this meeting. You may say, "why nine," and the reason is that this is Atlanta Nine, so I'll call these the Atlanta Nine. The other reason is that that's the way it happened to come out. These are not to be confused with the Chicago Seven. I've put them in order of priority as best I



could and the order was determined sort of by the amount of time we spent on it multiplied by the amount of profanity that was associated with the topic.

The major concerns that I heard, (1) clearly related to cost control. It was pointed out that we have a process problem. Our process tends to encourage low estimating because of the competitive pressures of the source selection activity and because of the program approval pressures in the Congressional cycles. It seemed to be the view that the villain in the cost control area was one of estimating, rather than of execution of programs. Two suggestions came out of what we might do to relieve this problem. One was to allow contingency funding, which is of course being done under some programs to some extent, and secondly, a new approach to contractor selection was suggested, which I have in my notes called DC<sup>2</sup> to remind me of the two phases. The first phase is that we base the selection process on the difference in cost between the competitors as determined by the Government, rather than on the absolute cost, and secondly, having done that and picked the contractor to receive an award, the second DC is that we then go into defining the contract and the cost of that contract. Perhaps it might be appropriate to try that on two or three programs as an experiment because there did seem to be a good deal of interest in that approach.

The second problem area that I thought received a lot of attention, I've called turbulence and instability. It was pointed out that turbulence and instability deters investment, it demotivates people, it increases costs, and certainly one of the great causes of turbulence and instability that was suggested are Congressional actions, particularly budget actions, language actions, and that much of our management attention is devoted to keeping programs alive, rather than to executing them in an efficient manner. That was said to be a disappointing way for many of the people in this room to spend their time.

Multi-year procurement was felt by many to be an effective way of relieving that problem, but it was also pointed out that when you discount at reasonable discount rates, you have to have a pretty good item before it can pass the threshold of acceptability. No one mentioned the idea of a two-year budget cycle for the Federal Government. Let me throw that in as my contribution. I think that will happen in our lifetime, not because it's the right thing to do particularly, but because I think the workload of members of Congress is just going out of sight.

The third item that I noted dealt with the problems of transition to production. It was said that that's been a highly neglected area over the years and it's also an area for high

pay-off if we were to spend our dollars early on to prepare for that transition. It was also pointed out that we need to learn to design for production, for producibility, and that many of the folks, both in Government and Industry, have somehow forgotten to do that.

The fourth area I have is the one called competition. Clearly the basis for the free enterprise system and I think all of us in the room strongly embraced the notion. At the same time it was clear that competition could be misused. It was said that we should try to decide early on what our competitive plans are for a program and we should announce them, so that everyone knows what the ground rules are. Otherwise, contractors find the threat of competition, real or otherwise, as a major deterrent to investment. It was said that there is an advantage to buying through our primes, the purpose of that being so you can have clear responsibility and accountability, but it was also pointed out that maybe that shouldn't apply to some items, such as consumables -- tank tracks, if you will permit me to call that a consumable.

The fifth item relates to logistics, the point made that that's still a major concern, that many of our systems perform superbly while they are performing, but too often they're not performing, due to reliability problems, lack of adequate spare parts or training manuals or what have you. Solutions there included getting the logisticians involved early on and paying more attention to designing for maintainability, and then obviously putting money into spares.

The sixth item related to the insertion of technology. It was said that technology provides us the lever with which we may be able to fight and win outnumbered. At the same time that leading edge of technology is proposed for selective use, it was also said that we should continue to put high emphasis on PI and P<sup>3</sup>I, and it was said that before we go into full-scale engineering development, we should be sure that our technology is well within hand. Some comments were made about the tech base and the fact that there is too much propensity to take a contractor's ideas and then go out and compete his ideas at the 6.1 and 6.2 level, and that's counterproductive to contractors having any motivation to try to create new ideas.

The seventh item related to the management process and what I would describe as, in some areas, a cumbersomeness or a layering of that. It was said, "Where do you go when you have an idea you want to make happen?", that the budgets are committed far ahead of time, particularly for research-oriented projects, 6.1, 6.2, 6.3 I would include in that, 6.3A. And it was said that by the time a contractor goes from the contractor to Commodity Command and DARCOM Headquarters, the Army Staff, the Army

Secretariat, the OSD, to OMB, to House Armed Services Committee, to House Appropriations Committee, that there are a lot of people who can say no along the way and it's hard to make things happen efficiently. A little statistic of my own, I calculated that each R&D program is voted on 18 individual times a year in the Congress alone. If it takes 8 years, which it does on the average, to run an R&D program through development, that's 18 times 8 which I think is 144, and that gives an awful lot of opportunities for disruption or termination.

The eighth item that I would offer relates to quality and productivity. It was said that the two go together, which obviously they do. And it was also said that we can do better and in fact, the attitude is such that the time is right. This also, though, requires capital investment, and that in turn requires stability of programs.

The ninth and final item on my list dealt with the definition of requirements. It was pointed out that we have difficult quantity/quality trade-offs to make and that requirements very often are stated in broad terms or should be, but the contract requires specific detailed terms and those two objectives are in conflict and resolution is needed. It was said that the Industry dialogues not, perhaps, greatly enough with the user and again a question was, who do we go to for support in the user community. The user role in 6.1 on basic research received a lot of attention. It was pointed out that we greatly need to avoid hobby shops in the technology community, where technologists are working on things with little opportunity of pay-off. It was also pointed out, though, that the user may not really realize the value of working on silicon or . . . technology or something like that, and that one might say that many of the more important things we found have been found by accident in basic research, things including penicillin, synthetic rubber, and America.

With respect to the overall status of the enterprise, I believe the conclusion was that we're making good progress. We see things like STINGER, BRADLEY, ABRAMS, PATRIOT, APACHE, BLACKHAWK, and so on going in the inventory, performing well in spite of what one reads in the media. But at the same time, it was pointed out that we have some counterproductive forces underway. One that was cited was the completed contract method of tax accounting, which is the process of taking hundreds of millions of dollars of capital out of the industry at the time that we're being encouraged to capitalize more greatly for productivity. It was pointed out that "lobbying" is under attack and the confusion there is the difference between lobbying and legitimate attempts to provide factual information about one's products, information to, in some cases, counter the huge quantity of non-information that you read elsewhere.

It was pointed out that IR&D is coming under attack once again and that it is indeed the life blood of the Industry's creativity.

Finally, one that didn't come up but that I would mention because it typifies the problem we've talked about of agreeing at the policy level in this room and then going away and finding at the implementing level that there's not agreement, would be the prompt payment act deliberations this year, whereas you'll recall the Congress became concerned that a relatively few government paying offices were paying bills way longer than 30 days after they were due. Congress passed something to help Industry, called the Prompt Payment Act, which sounded fine until the implementer came out and the implementer said that you will pay promptly on the 30th day. The consequence was that it took another ton of money out of the Industry. That administrative problem has now been corrected, I'm happy to say, in most but not yet all the hold-out areas in the country. That's an example of the kind of problem I think we collectively face when we leave the room here.

Anyway, that's what I heard. I hope I triggered some thoughts for questions there. Now, the gentlemen who are supposed to pick up the pieces are here on my right. The floor is open to questions. I hope that we'll get lots of them.

#### Question

I think we do a pretty good job of looking at what we do wrong to see what the lessons learned and what we can do about it. The question I'd like to raise is whether we spend enough time looking at what we did right and what are the lessons to be learned from that. I guess I have a question for the panel. To your knowledge, has there been any really organized effort to take a look back, say, from the end of World War II to the present and ask what are the good programs that we had? What are the ones that have a public image good, a military image good? How did we handle those? What are the lessons from that? It seems to me that in looking just at our failures and the lessons learned, we say, well, as a result of this, we're going to put in a procedure so that will never happen again. And the next time we put on another one and pretty soon we get a chart like Norm Augustine showed earlier today of how complex the procedure is and how hard it is to work its way through. There's really nothing new in this business, I don't think, but we just keep creating something out of our past somewhere. Maybe we should reach into our past and find out what's the best darn things that we've done in the last several decades and maybe we can invent something new which is to reinstate some of those things. There hasn't been an organized look back with that kind of perspective, and I'm not aware that there has been, then that might be a worthwhile thing for some analyst to do.

Secretary Ambrose

I thought the law had something about double jeopardy in it to protect me from all this.

I'm not aware that there's been a systematic combing of the past. I guess I'm not entirely certain that it could be done with complete effect because the past seems to get foggier and murkier as we go toward it and also what is one person's prize performance turns out to be someone else's dunce performance. But I don't wish to decry the suggestion because I think without having done it in some thoroughly organized way, we are, in fact, doing just that sort of thing. A couple of examples that come to mind to illustrate both sides of that are the MLRS program, where I think there's basically a good story because under highly competitive conditions but actual hardware demonstrations, the design to unit cost was a commitment that both of the competitors made and some years later, and others would have to say just how many that is, we're still looking at the prospect of holding to that line with adjustments for escalation in it. While that may not be the ideal model nor is it necessarily a perfect story in every respect, it seems to me that that and others where you have actually carried through to demonstrated performing equipment and where you, under the competitive circumstances of that kind of a shoot-off, as it's called, then call for commitments, not only to finish off the development but at least to tie some part of the production down as a committed cost without going so far as to get into the discredited total package procurement thing. You come reasonably close to having a handle on particularly this notorious transition to production, as it is called, where, in fact, I don't think it's the transition to production, there are a few other aspects of it including failure to disclose that tend to drive the cost performance the way it has gone. But in that case, there is a good story. The contractor and the Government, both, I think, have stayed on top of every facet of it and as much as possible, I would like to see us do more of that kind of program. We are doing it; we've got one running at the moment called . . .; we've got another called . . . These things are real world. They approximate the commercial world to a degree. So there's one example.

The other example that occurs to me might not occur to many of you, given the brouhaha, and it wasn't one that my neighbor put me up to here. That's the Pershing program, where there's great hue and cry over concurrency as being the evil of all evils. I have a notion that it's the other way around. I think most of you would agree that some of your sharpest accomplishments have been 30 days of preparing a bid, and you may not keep the same people at it for another 30 days, which is a

problem. But this business of having to manage risk and having to live close to the edge of the cliff and try to accomplish something against a fixed target is a mind-clearing thing which I think has, on the whole, demonstrated good performance, moreso than not good performance. The ones that I think less of are the ones that have been, for whatever reason, strung on and on and on through maturation phases and low rate initial production and Congressional changes of volume and all that sort of thing, and in the end people get a bit worried, you change program managers and other people many times, the suppliers come in and out of the thing. I would say that there is a clear lesson that we ought to tighten that sort of thing up.

#### Panel Member

In answer to keeping book, we are, on selected programs within the resources that the Defense Systems Management College has to do that. About three years ago, I asked them, since they are sort of our library, resource, our educational base for program management, to take, not all the way back to World War II because the environment has changed so much, but to take the experience of the decade of the 70s and to try and from those develop the case studies for education on what went well, what didn't go well, and the reasons therefor. Taking the same example that Jim took, since he has already singled one out, the lessons learned, I think, are that if you have a strong consensus in the first place about the requirement and the need, and you put together a program that is successful in time and in cost from the beginning, the likelihood of getting on through something successfully is very, very high. We had the added bonus in that one of not only an Army consensus, but an international consensus, which helped. Consensuses are very important part of this business in the environment in which we work. You just can't make that go away and so to look at an environment where we were allowed to do our business more like you do in the commercial marketplace 30 years ago is just not very productive because I don't think we're going to change the world. But there are efforts to record, in the relatively current environment, the good and bad things. Those, I assume, are available to Industry if they're interested in looking, too.

#### Question

I'd like to get the reaction of both Secretary Ambrose and General Keith on this Industrial Modernization Incentives Program. As I mentioned yesterday, and I think it's been mentioned again, there is a test program that has been authorized, kind of a waiver of the DAR has been authorized for this test program. It's a non-trivial kind of problem to work through and yet it seems to me that this is one of the white hope, as I mentioned yesterday, that we do have if together we can kind of

get an incentive structure that is realistic and that we can really make work. It seems to me that now is the time to do something about it and I'd just like to see how involved you are and how you view it.

#### Secretary Ambrose

To begin with, I think it's a highly attractive program from many points of view, and I don't need to expound them here. In fact, as you heard from General Herriford, we're in the process of trying to figure out how to do it now, which we haven't completed. But I think that once we get our arms around the how-to, so that we can be credible when we do this, and can, if successful, take it beyond a test, that it's very important that we are able to have credible results that show that in fact it is a smart way for the taxpayers' money to be spent so that there is a mutual benefit, not only for the Defense Department but for the total Industrial base.

#### Question

I'd like to hear the panel discuss a little bit of the problem raised by the instability mentioned by General Keith on the first day and the push to modernize your facility and facilitate for productivity in the face of this instability. The example that is burning in my mind is . . . , where we invested \$46 million in a six-acre plant to build 3,400 missiles and 278 launchers, and we're now advised we're going to build 1,475 missiles and I have an empty factory staring at me. The factory was built in good faith; I'm sure the Government encouraged us in good faith, but here we have instability and it might be a cold day before Mr. Wilson lets me out again.

#### Panel Member

Well, I can't speak specifically to that decision process, but I can certainly sympathize with the notion of being left high and dry. I . . . that the main consideration on the Government side to protect against that sort of thing was some kind of recovery of investment that was not depreciated. I don't know in that particular instance whether it applies or not. If I could go back to Mal's question and try to combine the two,

my own feeling is that the Government is not a very good decision-maker in terms of prescribing capital investment or individual industrial companies in a competitive, more or less, marketplace, that I've seen some particular examples of that where I think the government actions have not been wise at all. I think we ought to concentrate on those things which make it possible to make your own market decisions and investments, and recover them with perhaps some insurance policy against these out-of-control product decisions rather than try to find too many programs and too many ways of intermingling the free marketplace and government

decision processes. I guess it was Norm who said they've got 18 times whatever your arithmetic was of saying no, and somewhere between 0 and 1 ways of saying yes, and that it's just as well to stay out of this. In saying that, I may as well be running cross-threaded with particular programs of encouraging these investments, but I am concerned that we have too many different ways and these, in turn, result in contradictions. We see this sort of thing, for example, in the commercial activities effort and in the small business, big business arena, and the programs no doubt are all created as well-meant things, but the tendency is to put in too many of these programs. Different clubs or clutches get responsibility for executing these things and they're at cross purposes. I don't think there's long-term benefit. But I do think that when you're dealing with . . . , Industry just simply has to have some form of incentive plus resort or insurance that doesn't leave them completely hanging out. In the commercial marketplace, that's their problem and in that marketplace, Industry learns very quickly how to balance the pricing and profitability and investment strategies or it doesn't last at all. In the Government arena, it's just not that easy, so I think the Government has to provide some protection and incentives. Whether this program that . . . mentioned is the one to do it, I can't say at this point because, as Don says, it's not that well formulated, but we keep trying to do these things . . . . .

#### Question

I'd like to address a question to General Merritt. As Mr. Augustine showed in his remarks, there seems to be a ground swell of interest within Industry to continue the process of earlier involvement in the requirements generation cycle, with the idea that it has a lot of benefits that can be gained relative to such things as better cost management or cost containment on an overall basis, better alignment of what Industry is doing in IR&D as an example to what the needs might be. I'd like to ask two things. First, what your reflections might be on this and second, do you intend doing anything about it as far as continuing the process?



## General Merritt

Well, I think, and I guess as I'm sure you got from my comments yesterday, I think there's a crying need to get the requirements generation process as it is founded in the TRADOC as the surrogate user in the Army, to get that in a close interface with Industry. Now, I will tell you that an episodic relationship, the kind of relationship that we sort of have now and have had over time, is not a very useful one. These one night stands -- I want you forever. I feel like someone is showing me filthy pictures, or let me show you this laser I'm going to sell you. I'm looking for something that is fundamentally a long-term relationship that allows the user, both as he generates his appetite and then as he develops his requirements -- let me talk about the appetite first.

As he starts trying to figure out the problem he's going to solve, he's got to know, as I said, what the art of the possible is. And we don't very well know that. We, I think technologically illiterate is a fair charge to those of us who are wandering around out in the schools and centers and working on the requirements and coming up with the guns and the widgets and so forth. So we need that by-play.

Now, the requirements side of it is something else. General Keith and General Otis have been having a fair number of discussions; in fact, we had a little discussion down here a few minutes ago about trying to pull together a DARCOM/TRADOC requirements writing conference to see if we can learn how to pronounce the requirement a little bit differently and a little bit better. And each of those things, in each requirement, we put a mark on the wall, but in truth, there's an indifference level there somewhere and there is a maximum performance level that you can get, and somewhere inbetween that are a variety of performance requirements, either individually or in combination, of trade-offs between . . . and actual performance and all those sorts of things. If we can write that requirement so it's a bandwidth requirement, it's perfectly acceptable to us. We just have to learn how to spell it. Are we going to do something about it? I think General Keith and General Otis have already pledged to do something about it and to the extent I have any influence over it, one of the things I'm going to do is go back home and work that problem to see if I can lay the foundation both for teaching our people to write requirements and for trying to figure out how we can get better hooks into industry. We're trying to educate our people some. We've developed some systems manager courses and some things like that, come on line in June, where the guy is a little bit more proficient in how to lay the foundation for a sensible development and all that. And we're going to get with Industry. But we need your help to

find ways that we can get a healthy, productive, long-term relationship.

Panel Member

I've got to add something to that. A couple of things -- one, I talked about the people development program yesterday. In the TRADOC structure today, in the combat development structure, there are positions for the R&D career field qualified officer to be assigned. Many of them who get there who happen to be carrying that skill identifier really haven't gotten skilled in it yet. It may be their very first assignment with that skill identifier, so it's a faces and spaces thing. But in fact, the TRADOC structure is a part of what we are looking at insofar as building the whole requirement for people within the Army. That's point number one. That'll take some time.

Point number two -- while I applaud TRADOC's wanting to have a direct interface with Industry, and while I know you all have long wanted to have an interface with Industry, I have an institutional responsibility in the business to be a partner with TRADOC in this very process of getting educated to work with them during their mission area analyses and to provide them that kind of advice. There could be a perception -- and we've got to be careful that we don't develop that -- that the DARCOM structure is simply not trusted. They're the filters; they're the bad guys; the only way we can find out what's going on is go talk directly to Industry. I'm going to resist that. It's a troika. You heard that yesterday, and I'm going to be sure that it stays that way, because in the end, we pick up the institutional marbles for managing that half of the business for the Army.

Panel Member

I'd just like to underline one thing here. This is an old subject and this will be an old subject many years from now, I suspect. The requirements people, the Army operators, are bound to want everything they can get and most of the requirements documents are staples run through all the druthers. The Industry people are bound to sell the fanciest and best performance, both in terms of inducing change and in terms of inducing belief that they've got a better widget than the other fellow. What's missing on both sides of that is this bandwidth business that General Merritt just mentioned. Tell us about the maximum performance, but put some plus and minuses in there and put some if-you-do-this-it-will-cost-that or you-won't-get-this and so forth. Then the in-house crowd has to do the same thing and the secret in all of this, I think, is nothing more nor less than common sense and the really strict discipline, then, not to go for the outer reaches of the utmost of performance, at least

without knowing considerably more than we presently see in the presentations of point estimates, stripped of all the conservatism and the asterisks and the footnotes. That, I think, is the responsibility on both sides.

#### Question

It seems to me that we had, in the cost presentation yesterday, the latest in a series of efforts to figure out how do we control things. It obviously built, and built well, what took place in Chicago. Now, I was very gratified to find that first of all, they took a look at what incentivizes the user, the developer, and industry; that they faced the fact that one should decide how much you want to pay for a given capability, let's say in air defense or in aviation; that they recognize that only with time do you get definition of what the real trade-offs are, where the cost . . . curve gets hit, something you don't know when you're first writing the requirements. You don't really know how wide the band really should be because you don't know what it's going to cost. Yet, with the suggestion yesterday, one is able to approach it iteratively. And I think we would all benefit if we could put a focus on the next step of what these fellows propose. I suggest that we take a look at writing out a road map of how do you flush out that concept, how do you look at the various questions that were raised, like what's this going to mean to Congress? I think the concept can give you a better vehicle for approaching Congress and coming up with a budget that doesn't sting you in the rear later on, that when you define these points you come up with solutions for them, and that you report on the progress periodically. Last, but certainly not least, recognize that you really ought to continue the process with this menage a trois at each step, because I think we each have something to contribute. In that way, the user people can feel that they're contributing to this concept, as well as the developer, without interfering with responsibility that Don pointed out that he has, Otis has, or Richardson has.

#### Question

This is really a question for Secretary Ambrose. It has to do with a point that you raised this morning, with respect to multi-year procurement. And I'm speaking from our own experience at Sikorsky where we are well into a multi-year contract and are finding in ways that we can't really quantify, at least as yet, and I'm not too sure that we ever will, that the concept is working better, really, than we ever expected. A primary benefit is turning out to be the leverage with the subcontract community in terms of offering them a much bigger package to work with and giving them more flexibility to control costs and so forth, and

just more business which makes them more interested in giving us a better price. But there are also a lot of internal benefits which derive from the stability, the lack of having to sell the program continually, and sell the production rates continually, and being able to concentrate on the main task, that of reducing the cost and getting the production out. The problem, though, is in supporting the concept to Congress and the other doubters. Essentially, the basic issue is that you're talking about something that exists versus something that might exist. A multi-year approach versus what might have happened under a single year approach. The progress that we're making in many, if not most cases, is difficult to pin down and say it's specifically as a result of multi-year contracting. Again, it's the type of thing where the doubter, if he wants to come in and he wants to challenge the assumptions that have been made and their reasonableness, can probably find weak spots here and there -- and again, since there's no firm comparison on both sides, it's difficult to come up with an ironclad case that says, here's what multi-year contracting has provided in savings to the Government. Where we did have documented savings, in the case of our first multi-year contract, of course they couldn't be parallel contracts negotiated out for a full three-year period. We had negotiated contracts for the first year and agreed upon estimates between the Army and Sikorsky as to what the savings would be for the second and third year. Although we can come up with what we think most people might agree are reasonable estimates, there's no way to really pin this down.

Now, as we're preparing to go forward and defend the advanced funding required for a second multi-year contract, (and we're sure this same problem is shared by many other contractors) any insights that you have, Jim, in terms of what you feel that should be main thrusts of the documentation of the savings, or other benefits, would sure be helpful.

Secretary Ambrose

Would that I had a formula that I could just put up on the blackboard here. The problems that Lee recites are real enough and I don't think you'll ever get away entirely from suspicion that somehow or other the ... are being filed to prove that the multi-year is better when it really isn't. But in the case of -- and there have been three or four of these -- where there is an established product, been in production for some reasonable period of time so you've got detailed cost records up to that point in time, albeit on an annual sole source basis -- I say annual sole source, that's prime level, but you

may well have at the second and third tiers competitive information --- that's your starting point and in the ones that I have so far presented to the Congress and gotten, I guess, approval or at least tolerance for, we have said the annual future buy is estimated along the equivalent learning curve that has been achieved thus far, provided that itself is reasonably consistent with what the Industry experiences have been over a period of time. Not an exact number, but at least not an effort to have an artificially high annual sole source . . . proposition, the presumption being that we have a responsible contractor and a sufficiently proficient and hard-nosed government side that they can drive the thing down in future costs that way. Then the multi-year has to show substantial savings below that, and those substantial savings have to be realizable, either through reduced labor costs, in some cases by putting the work in a different place, or by investment in machine tools or processes or whatever to effect a departure from the annual sort of thing along lines that are related to the reasonableness of investing in a better process. As Sikorsky people know, we went through quite a long period of analysis and examination of just that before I was satisfied enough to take it across the street. I think we will probably do quite a bit better because I wanted to be very conservative in the first shot or two that we took at this, lest we discredit the whole idea. The difficulty, most difficulty comes with those that are not yet in production. The one example that we've actually taken through is the MLRS and we had, as some of you know, quite a battle over on the Hill about this one. There we had the reference point of a hard-fought competition and promises made at that time by responsible contractors and we simply said, first of all, that we were going to hold them to the promises -- and we will. So part of the reasoning was we struck a bargain with the competitive thrust at that time that was reasonable and we'll live with it and hold the contractor to it. We've actually improved the prospects of money saving substantially beyond that in that case by taking advantage of something that didn't exist at that time and that is the multi-year provisions with large enough cancellation clause that gave us the opportunity to make even more savings and I think that was kind of the winning aspect of that. Those things that are just starting into production from a reference point that is not committed that way, they're going to be very difficult and I think we're going to have experience that the Congress just simply isn't going to accept very much from that kind of starting point. So my guess is that while it might make more sense to go into multi-year procurement from the outset of production, that simply is not going to be accepted and we're going to have to wait for the production to settle down.

### General Keith

I agree with everything you said, Jim, and one of the penalties for the process is going to be the need for us to ask you to try and help us differentiate between what continuing on an annual basis would be versus a multi-year so we can generate the numbers to go and make the argument. Now, that's important and I understand that, but in the long haul, I don't know how else to do it except with you and we'll make no progress until we give that an honest cut. I apologize for having to do it, but I don't know any other way to do it, and it deserves a good solid cut on your part. In my view, the stability and all the other benefits that come from this make it well worth a good first cut.

### Question

For Don Keith, what is the DARCOM view on the acquisition process being demonstrated out of the Ninth Division? Is the money being well spent? Are we getting the light weight equipment? Are we getting it quicker?

### General Keith

There's a lot of misconceptions floating around about the Ninth Division and I'll let Jack talk to this, too. But the Ninth Division was turned loose and encouraged to be a free spirit and a lot of good things have come from that. Unfortunately, the cost of doing everything that they would just love to do -- you turn a bunch of young tiger battalion commanders and 3's loose and you know what happens -- is such that we can't afford it all. And so we've streamlined the processes so that we can support them in time, expeditiously, get them their surrogates or their real thing -- we've got new distribution plans for some of the things we were going to buy and send, perhaps to Europe first --- that all happened very smoothly. We have been able to either buy or lease a surrogate or the real thing on schedule without exception, using ponderous old DARCOM. Now, every time you guys get together with those folks out there and your thing ain't being bought, it's because ponderous old DARCOM can't get through the procurement process. That ain't the reason, fellows. The reason is that the total bill for everything that they would like to have for a 1985 target light division is \$2.5 billion and it isn't all funded. Now, the reason we're institutionalizing the process that DARCOM has for them, and we have expedited it and I'm holding everybody's feet to the fire, and what Jack is going through at at CAC, is that we do not want the Ninth Division to benefit only the Ninth Division. As they learn and as we are getting prepared to export the good ideas into the rest of the light divisions in the Army, the institution, all of the schools need to be tracking this and all of my people who ultimately will be charged with

supporting that, have got to be leaning forward in the foxhole there, too. The lead time to get ready to support something like that, if they were in fact deployed, is damn near as long as the play-around to see whether they want it in the first place.

So my only deal with Bob Elton is, when you think you're close enough to be serious about that, I've got to spend some risk money to get a viable support concept in place, given that the tests are successful. Bottom line, good process. They're not going to get everything they want, probably, and the real challenge is to look at the overall concept for that Division and to be able to, within that concept, get the highest leverage thing for them that we can afford.

#### General Merritt

I'll comment just briefly, and it's much along the same line that Don -- the process is really the key thing out there. In 1985 or 1986, whenever this Division becomes fleshed out as the special demonstration light division of the Army, which is really what it is -- I think sometimes we misnamed it -- then we want to borrow from that and take the good ideas, the organizational ideas, the equipment ideas and so forth and regularize them and insert them into the rest of the Army. And we are supporting that. We are testing organizations, we're testing new structures, new concepts, new ideas in support of the equipment, but as Don pointed out, sometimes the bill gets a little rich for us and we aren't able to do everything. But it's a great process and I think it serves the Army.

#### Secretary Osborne

Judging from the comments, the Ninth is having a healthy effect on TRADOC and DARCOM, as well as on the Ninth.

#### Question

I'd like to go back to this comment on the specs and bring in one aspect of the flow-down problem, with a suggestion. I think in this room, the people who are can say, an Industrial guy to a military guy, "I think you're wrong for the following reasons," or "I think you can do it better in this way." But realistically, when you get down to the system engineer, the program manager, the designer, he's talking potentially to somebody that's on the source selection evaluation board and I just question how honest he's really going to be in making his comment. In order to really pull out those inputs, maybe you need to have a secret ballot or maybe you need to specify, "Please sign one of your competitor's names to your comment so that we will know that they're all from different sources than indicated." I just raise the question, if this isn't another flow-down problem.

We're all familiar with the complaints about what the contracting officer does, but when you have hanging over this the prospect that what you say might be judged by a member of the source selection evaluation board who would take it as being a criticism of this thing that he's generated, there might be some reluctance there to really be frank and perhaps that reluctance could be overcome by providing some sort of a format in which those inputs could be provided somewhat anonymously.

#### Panel Member

We could do that, although I've been involved in a number of source selection processes over the last 20 or so years and I think I can assure you gentlemen that the likelihood of that being able to happen with the total composition and structure of the board and the checks and balances in there is like zero, almost. Your perception of what goes on in those source selection evaluation processes may be different than what is real. However, I accept what you say. Mal and I had a conversation about this yesterday. In fact, we don't want comments from the lowest level of folks in the end. What we'd like are your comments and we would like those comments to go to my two-star commanders and let them digest it. So I think if the process is going to be meaningful, it has to be looked at by senior management on both sides, rather than at the lower level, as you suggest, that's occurring now. If there is really that universal fear, we can sure as hell make them anonymous; that's easy. But one thing that I think would be more productive than that is to escalate it so that the comments are coming from senior management rather than the worker guys and going to senior management. There is, I think, almost a zero possibility of constructive comments having any influence at all on the source selection process in the end.

#### Question

My question is for you, Norm, or other senior executives here who might be willing to offer a comment. It sort of goes back to the partnership of the Army and Industry beyond the original development and the acquisition, but the support and sustainability in the force. It was a little disconcerting for me as a user, yesterday, to hear that there may be some question about the sustainability and the continued support in the event of all-out hostilities. When I analyze the ILS requirements for a major system and we look at low density MOSs or high technology requirements that might better be served by Industry, then, of course, we attempt to contract for that service. Case in point, the C-12 aircraft. We have barely 100 of those around the globe from Seoul to Saudi Arabia, but that's a special electronic mission aircraft expected to perform a combat mission in the event of hostilities. I guess what bothers me is the fact that



we have a contract for the continuation and support of that equipment. Is that contract valid, because from time to time I'm asked, do you really expect to use that system and, of course, continue to have Beech Aircraft maintenance or whomever maintain those services for you. Yesterday there seemed to be some note of it may or may not happen. Will you please comment on it?

Mr. Augustine

I'll be glad to, but I tell you what -- Mal Currie has been running the Defense Science Board study in relation to that. Mal, I might give you the floor on that one.

Mr. Currie

About a year and a half ago, the Joint Chiefs asked the Defense Science Board to look into this issue. They took note that we are in the process of deploying a new generation of very sophisticated defense equipment that would require contractor support. They asked for an assessment of that. They also took note that there was a legislative package being created in DOD to make possible, for example, the mandatory enlistment of these contractor civilians around the world supporting these systems into the active forces or into the reserves at a moment's notice, various legislative packages. They were just generally concerned about this business of how you can rely on these contractor civilians, particularly in times of hostilities. In times of a declared emergency, of course, the President declares war, declares an emergency and you can draft people, you have all kinds of mechanisms available. They also took note of this tree-cutting incident that happened when Norm and I were in the building in which, as Jack Guthrie mentioned yesterday, a number of the contractor civilians expressed the desire to leave Korea at that time. It was a very tense time. So we formed a Defense Science Board Task Group, which I chaired. The final report has been written and I'm just scratching my mind -- it's been some time since I wrote it, so I'll have to give you the top-of-the-head conclusions. The title of the report is, I think, Retention of Overseas Contractor Civilians in Times of Hostility. Now, we did a complete study of this. We did a study of how many of these contractor civilians are actually distributed around the world, what kinds of systems they support, and how many of them would be required in the future. We took note of the fact that in order to efficiently deploy the systems and, in fact, maintain them over their life cycle, there's no question that greater support by Industry will be required, or at least is desired if the military can have confidence that they will stay. Far fewer of these civilians exist, incidentally, in positions of what we call the sensitive systems than you might expect. There are thousands of them around, but the ones having to do with the support of very critical systems that would seriously impair military

capability in times of hostilities if they suddenly jumped ship are far fewer than you might imagine. It is estimated on the order of 500, but I suspect you could make an argument for 1,000 of these . . . for you at DOD will exist in the next few years.

From an historical point of view, there is absolutely no evidence at all that these people would abandon their post. As a matter of fact, quite the contrary. In the tree-cutting incident, the thing that Jack referred to yesterday, there was a questionnaire sent out. A survey was made, "would you like to leave Korea?" The answer was, on the part of about 50% of them, yes. They didn't ask any of the GIs, would you like to leave. The reason given, incidentally, was not for themselves. The reason that they were nervous about staying was because most of them had dependent families over there and they wanted to see these families taken care of. So part of the Defense Science Board recommendations, a very explicit recommendation had to do with a set of actions which could be taken by the Manpower Reserve Affairs, parts of DOD, in assuring these people ahead of time that their dependents would be treated exactly the same as military dependents. This is a do-able action. It doesn't cost any money on the part of DOD, and I think it will be effective. We discouraged any attempts to get legislation through Congress that would coerce these people to stay and put them under the Uniform Code of Military Justice, and in fact, this effort by DOD has been abandoned.

I think that just about sums up the main recommendations, Norm. We did introduce, we made certain recommendations on contractual language between any contractor and their employees overseas to give them assurances how their dependents would be treated, and what would be expected of them in times of hostility, recognizing, however, that such a contract probably would not stand up in court. That is, the courts would not honor a contract if it really came down to it and there's a whole legal history to support that contention.

Mr. Augustine

I think that's a good summary, Mal. I might just say as a footnote, in appreciation for the efforts of Mal's committee, they are now being investigated by the GAO for industrial influence on the Government.

On that happy note, I think we're out of time. Let me just thank our panelists here and let me also particularly thank the Army for the tremendous amount of effort that they go through every year to give all the rest of us a chance to hear what's on their minds and to share what's on our minds. Also, thank

the ADPA for the administrative effort putting together this meeting. As you all know, that doesn't happen easily and the folks from the ADPA have done a super job for us.

Right now it's time to turn the meeting over to General Keith to wrap it up.

General Keith

I, too, would like to add my thanks, Hank, for the usual fine job of you and your staff in making this administratively possible, and for all of you for your participation, with special thanks again to the people who worked in advance of this meeting to get these panel presentations together. It wouldn't have happened, had all that homework not been done and I just have to tell you that I, for one, have lots of food for thought and I say grist for action. So what I need to tell you, I guess, is how I propose that we take what we got from this session and prepare to do something with it, and how we'll report back.

Before doing that, though, there was one other thing that I wanted to do and I don't want to forget. Missing from our midst here today, for the first time, I think, in all the Atlantas, is a stalwart from ADPA and from Industry, and one of your close associates and mine for a long time, John Richardson. He's ill. I had gotten a note from him saying he was going to be here with bells on. We wish him well, Mal, and if you take back all of our good wishes, I'd really appreciate that. We miss him.

Well, it's been a great program, as I said, and there's an awful lot of things now that go into the final report. A lot of it is written up. A lot of the panel things are in draft. You've been asked to provide anything else that you may want to get into those drafts to the panel chairmen. I'm going to prevail on these gentlemen for yet one more iteration. We haven't tried this before, but in about 60 days I'm going to ask the panels to come back and meet with me and if I can get Jack Harritt there at the same time, I'd be delighted to have him there, too, because I think there's a distinct 'spill-over' into the TRADOC world, as well. What I'm going to ask the panel chairmen to do is try to digest this down to their findings and concrete recommendations for action. We'll take those -- those that we can do something about within our control, we will set that in motion. Those things that require something outside of our influence, we'll start on that. Those things that we decide not to do anything about -- and there may be some -- I think you deserve an answer as to why not. In the end, what I want is to take that action plan, either do something about it or not, and if not before, certainly at Atlanta X, we will build upon this dialogue. I think the greatest part of all this for me is to have built from last year here, through Chicago,

into this. This winnowing process is getting us down to some things that I think we jointly can do as partners to make our management of this business in this tough environment in which we live a lot better.

I greatly appreciate Norm's Atlanta IX summary. There is no way that I could have done that that well. He is a reparteur of real talent. I watched him, also, take a thing that I called marbles rolling all over the floor at Jack Merritt's place when we were talking about Industry/TRADOC, and wrote a brilliant report and that same line was used, when he sent it out, and, in fact, I wasn't at the same meeting that he was. But seriously, Norm, I appreciate your job chairing this and it was an absolutely superb summary and I kind of like the notion of the nine major thrust aggregation out of Atlanta IX.

So with that, gentlemen, I thank you very much for joining us. It has been, for me, and I think all of my people, a very valuable session. I hope it has been for you. You'll be hearing more about what we're doing next year. Thank you for coming.

## LIST OF ACRONYMS

AIU	-----	
A <sub>0</sub>	-----	Operation Availability
AO	-----	Acquisition Objective
APE	-----	Advanced Production Engineering
ASAS	-----	All Source Analysis System
ASB	-----	Army Science Board
B&P/IRAD	-----	Bid & Proposal/Independent Research & Development
BIT	-----	Built in Test
CBD	-----	Commerce Business Daily
CINC	-----	Commander in Chief
COEA	-----	Cost & Operational Effectiveness Analysis
DIVAD	-----	Division Air Defense
DLA	-----	Defense Logistics Agency
DMS	-----	Diminishing Manufacturing Sources
DPM	-----	Deputy Program Manager
DTC	-----	Design to Cost
DTUOC	-----	Design to Unit Operating Cost
DTUPC	-----	Design to Unit Production Cost
ED	-----	Engineering Development
EPA	-----	Environmental Protection Agency
EW	-----	Electronic Warfare
F3	-----	Form, Fit & Function
FPI	-----	Fixed Price Incentive
FSED	-----	Full Scale Engineering Development
HMMWV	-----	High Mobility Multipurpose Wheeled Vehicle
HTTB/HTLD	-----	High Technology Test Bed/High Tech Light Division
LHX	-----	Light Helicopter, Experimental
LRIP	-----	Low Rate Initial Production
MAA	-----	Mission Area Analysis
MLRS	-----	Multiple Launch Rocket System

9th ID	-----	9th Infantry Division
O&M	-----	Operations & Maintenance
O&S	-----	Operations & Support
OER	-----	Officer Efficiency Report
P <sup>3</sup> I	-----	Pre Planned Product Improvement
PIP	-----	Product Improvement Program
PM	-----	Project Manager
PMCS	-----	Program Manager Control System
PMO	-----	Project Managers Office
PROC	-----	Procurement
RDJTF	-----	Rapid Deployment Joint Task Force
RDTE	-----	Research Development & Evaluation
RFP	-----	Request for Proposal
ROC	-----	Required Operational Capability
SLEP	-----	Service Life Extension Program
SSEP	-----	System Security Enhancement Program
TDP	-----	Technical Data Package
T.P.F.D.L.	-----	Time Phased Force Deployment List
VECP	-----	Value Engineering Cost Proposal
VHSIC	-----	Very High Speed Integrated Circuits
VISTA	-----	Very Intelligent Surveillance Target Target Acquisition System

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